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ABSTRACT

Two sentence-combining tests and one piece of free writing per student provided the data in a study designed to determine whether the heavy writing emphasis given British children in their elementary years gives them significantly greater writing skill than their counterparts in the United States, who write comparatively infrequently. The data from 516 children (ages 8 through 11) in 19 classrooms in Great Britain and the United States include words per T-unit, words per clause, clauses per T-unit, time spent writing, composition length, syntactic maturity level, socioeconomic status, and sex. Results show that the British students spend much more time writing each week, that they score from two to three grades higher in syntactic maturity and write longer compositions than the U.S. students, that socioeconomic level is a stronger predictor of syntactic development for British children than for U.S. children, and that British children may also be better readers than U.S. children, based on the reading materials they use and the evidence that reading comprehension scores in the study correlated highly with syntactic maturity level scores. The results imply that U.S. educators need to reexamine the role of writing in their educational curricula. (RL)

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SYNTACTIC MATURITY IN CHILDREN'S WRITING:
A CROSS-CULTURAL STUDY

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SYNTACTIC MATURITY IN CHILDREN'S WRITING: A CROSS-CULTURAL STUDY*

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It is well known that writing does not occupy center stage in the U.S. educational system as it does in British curricula. The purpose of this research study, then, has been to determine whether the heavy writing emphasis given British children throughout their elementary years results in larger repertoires of linguistic structures for them than for their age counterparts in the U.S., who write so infrequently by comparison. A constellation of recent research has confirmed the hypothesis that sentence-combining practice (embedding one sentence into another) will increase writing fluency and maturity and that these qualities will be expressed in the greater use of embedding transformations and their reduction for the elimination of redundancy, i.e., saying more in fewer words. If British children can accomplish this maturity through free writing, such accomplishment would have implications for U.S. schools.

Two sentence-combining tests for each age level were administered, ones found useful in measuring syntactic maturity in other research. The results from these and from one piece of free writing per student were scored from 516 children in 19 classrooms in Britain and the U.S., yielding a total of approximately 154,000 words analyzed. In both countries children were selected from two age groups, those aged 8-9 and those aged 10-11, from schools paired for socioeconomic level. All output from the sentence-combining tests was scored, using the three measures considered by researchers as the most reliable indices to date for measuring syntactic maturity: words per T-unit, words per clause, and clauses per T-unit. Comparison of the means was secured for matched groups from the two countries on several variables, including hours per week in writing, length of composition, and syntactic maturity. The influence of socioeconomic status and sex on linguistic development was also determined. In addition, correlations between syntactic maturity scores and reading comprehension percentiles from standardized tests were computed.

One of the more surprising findings from this study is that British elementary children in this population sample spent from 8 - 14 hours per week in writing compared to 1/2 hour per month to 2 1/2 hours per week for U.S. children of comparable age and socioeconomic level. British children also scored from two to three grades higher in syntactic maturity and wrote longer compositions evidencing more of the later-appearing syntactic constructions than comparable U.S. children in the study. Socioeconomic level was a stronger predictor of syntactic development for British children than for U.S. children. Sex proved non-significant as a determinant for linguistic growth, but British boys' linguistic scores were influenced more than that of girls by socioeconomic level. Reading comprehension percentiles from standardized tests correlated highly with syntactic maturity scores for both British and U.S. children. Such correlations suggest, at least, that British children, who

were the higher scorers syntactically, might also be the more mature readers. Such results have implications for U.S. schools, particularly in view of the fact that the British children in this study used no basals or reading workbooks, their reading materials coming from children's literature and library texts.

If British children can attain a linguistic development several grades in advance of U.S. children of comparable age and socioeconomic status in the normal process of exploring topics of study and organizing and writing down their own thoughts as these thoughts develop, then we need to look again at the efficiency and humaneness of our educational curricula.

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Charles Townsend, Director of Research Development of the Kalamazoo Public Schools, made it possible to match schools in the United States with schools in England with reasonable closeness. Without the abundant help of the cooperating teachers and administrators in both England and the U.S., the study would have been impossible. James Bosco, Director of the Education Research Center at Western Michigan University, has helped from the beginning in the initial design and in the interpretation of the statistical data through his professional generosity and personal friendship. To Maurice Hughes, my husband, I want to express particular gratitude. His understanding and support on so time-consuming a project was essential to its completion.

The encouragement given by the English Department and by the university was invaluable in the granting of sabbatical leave, and later, assigned time for the completion of this project.

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CHAPTER 1. INTRODUCTION

OVERVIEW

Public concern over falling standards for writing in the U.S. has been making headlines both here and abroad. The headlines for the Educational Supplement for the Times in England for February 3, 1976 reported "United States: Concern mounts at fall in writing standards." The article cited the College Entrance Examination Board's findings that student scores in the Scholastic Aptitude Test had been slipping steadily for the previous ten years and had fallen sharply again. Other papers publicized similar findings. For example, the Miami News for November 7, 1974 claimed that 48 per cent of the new students at Berkeley were found to need help with basic English composition. The Phi Delta Kappan for November 1974 echoed similar fall in standards in a quote from Chairman Quinn of the City College of New York that 75% of entering students at that college needed some form of remedial work in writing.

Although soul searching and castigation of colleges and high schools has taken place, elementary schools have largely escaped notice by educators and irate public. Yet it is at the elementary level that the forms used for verbal communication are largely established and attitudes towards composition are formed. Writing suffers not only from indifference but also because it is frequently crowded out by the inordinate amount of time spent on reading in the elementary grades, especially reading skills. Downing (1973, 149), reporting on a recent cross-cultural study of 14 countries, found no other country devoting as much time to reading instruction as the United States, thereby reflecting an anxiety Graves (1978, 31) refers to as a "national neurosis." Few question the importance of reading. However, in reading as in many subjects, children

are working largely with the ideas of others. Except for oral expression, which has short-term memory restrictions for the organization of thoughts, elementary children have few opportunities for organizing the vast overload of information, experiences, and feelings that a child growing up in the latter part of the twentieth century must experience. Therefore, critical questions arise. How much time do elementary children write? And if writing and reading are as interrelated as they seem to be, would some of the time spent in reading be better spent in writing, as British teachers believe it would? And would greater emphasis on writing result in greater syntactic control, as shown by the use of more tightly packed sentences that say more in fewer words? These are some of the major concerns of this study. Each of these concerns will be considered separately.

BACKGROUND AND NEED FOR THE STUDY

Amount of writing--current U.S. practices:

A search of the literature turned up very little in the way of current practices in teaching writing to elementary children. A national survey on teaching poetry in the elementary school found not only that poetry was seldom read to children (25% of teachers surveyed read poetry to their children only nine times during the year, and 50% read it even less), but the writing of poetry was even more sadly neglected, with the majority of the 42 teachers interviewed indicating that their children wrote poetry occasionally or very seldom (Terry, 1974, p. 41). A more comprehensive study of the amount of writing for elementary children was reported by Dr. Sheila Fitzgerald, Chairperson for the Elementary/Middle School Committee of the Michigan Council of Teachers of English, in her opening address at the

Elementary/Middle School English Conference at Western Michigan University, March 12, 1976.¹ She reported on a recent survey of 7,000 elementary teachers who were asked how often their children did original writing in the classroom. Of the total, 80% said that their children wrote occasionally, which meant no more than twice a month; and 12% said that children wrote three to four times a month; 5% responded that children never or rarely did any original writing. Fitzgerald's report tallies with what teachers and principals have reported at conferences across the country in the past decade and with what students doing participation in the schools have also reported. The picture seems to have changed little in the past decade.

Sentence-combining and/or free writing:

Although U.S. children appear to be doing little writing in which they are responsible for the ideas and development of the thoughts expressed, research in this country has been pointing a direction teachers might take in helping children become more fluent and syntactically more mature in their writing with what appears to be attendant gains in reading as well. Against the backdrop of transformational-generative theory, a constellation of recent research has confirmed the hypothesis that sentence-combining practice will increase writing fluency and that this fluency will be expressed in the greater use of embedding transformations and their reduction for the elimination of redundancy. In Kellogg Hunt's words, "as schoolchildren mature they tend to embed more of their elementary sentences, their kernel strings (1970, p. 58)." For example, the elementary sentences She saw the rabbit and The rabbit was

¹Dr. Fitzgerald's remarks and those from other conference participants are included in The Language Arts Teacher in Action, ed. by Constance Weaver and Rollin Douma (Urbana: National Council of Teachers of English, 1978).

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hopping towards the garden would be incorporated into one sentence: She saw the rabbit which was hopping towards the garden, or, at a more sophisticated level, She saw the rabbit hopping towards the garden.

Although all schoolchildren appear to be able to use embedding transformations at all grade levels, some use them much more productively than others. Loban noted that there was a five-year spread between the high language performance group and the low performance group at any one grade level. He observed, "In grade one, for example, the high group has an average of 7.91 words per communication unit, and this level of achievement is not reached by the low group until grade five (Loban, 1970, p. 627)." Since the increasing presence of these embedding transformations and their reduction to eliminate redundancy marks the growing mastery in language from grades one through twelve, it seems reasonable that the gap between their abundant use by some children and their infrequent use by others could be narrowed through instructional practices designed to increase the syntactic control of all children, particularly those who would otherwise be considered low in language ability.

One way to increase syntactic control, then, is through instruction in sentence-combining, since this practice has shown increased use by children of available linguistic structures. [See especially the studies of Loban (1963, 1969, 1970, 1976), Hunt (1964, 1965, 1970), Bateman and Zidonis (1966), O'Donnell et al. (1967), Miller and Ney (1968), Mellon (1969), O'Hare (1973), and Daiker, Kerek, and Moremberg (1978). In addition to the presence of more syntactic alternatives following sentence-combining practice, O'Hare noted that the post-treatment students "appeared to attract or invite detail," and that "perhaps knowing how does help to create what (O'Hare, 1973, p. 72)."

Would not the reverse also be true? Would not knowing the what help to create the how? If controlled practice in combining sentences achieves greater writing fluency through making use of innate linguistic resources, would not the daily practice in free writing call forth these same resources? It seems reasonable to assume so. And would it not be preferable to shape one's own experiences into meaningful linguistic forms than to rework thoughts provided by others through sentence combining, if the same results could be achieved through either? Obtaining answers to some of these questions is basic to the concerns of the present research.

The interrelatedness of reading comprehension and syntactic performance in writing:

This study is an outgrowth of a previous research study, funded by Western Michigan University (Hughes, 1975), which looked at sentence combining as a means of increasing reading comprehension. In it the investigator found that seventh grade reading scores, based on cloze procedure, correlated on almost a one-to-one basis with syntactic maturity scores from the 'Aluminum' instrument used by Kellogg Hunt in his 1970 study. In addition, the experimental students, who had practice in sentence combining, achieved higher reading comprehension scores than the controls at the .05 level of confidence. From the results it was hypothesized that sentence combining removed syntactic roadblocks in reading comprehension, similar to the roadblocks O'Hare hypothesized were removed in writing by sentence-combining practice, enabling the treatment group to see more clearly, as judged by their richer use of detail, and to use syntactic forms not expressly taught (O'Hare, 1973, p. 72). Applebee (1977) in an ERIC/RCS report of current research on the link between writing and reading, mentions

some thirteen recent studies, including the one just cited, which suggest a close relationship between writing and success in reading, particularly in the ability to bring implicit knowledge of syntax to bear while reading.

One particularly impressive study, which has done much to establish the practice of early writing in New Zealand and English primary schools, was done by Marie Clay at the University of Auckland, New Zealand. She found that giving children the opportunity of experimenting with the formulation of their own letters, words, and sentences from the beginning of their primary education, or earlier, gave them a tremendous impetus for reading not possible with reading instruction alone (Clay, 1972). In her book What Did I Write?, she states some of her observation as to why writing gives so much impetus to reading:

Fluent oral language may permit the young reader to depend almost entirely on meaning and the eye may overlook the need for discriminating details of letters and words. Creative writing demands that the child pay attention to the details of print....Language can be thought of as a hierarchy of units: sentences can be broken down into phrases, phrases into words, and words into sounds. The good reader tends to specialise in words or sounds and may be ignoring the details by which letters are distinguished. But this is not possible in early writing. All features of the language hierarchy must, inevitably, receive attention as the child builds letters into words, words into phrases and phrases into sentences and stories....In the child's early contact with written language, writing behaviours seem to play the role of organizers of reading behaviours (Clay, 1975, pp. 2,3.)

If one looks upon writing as cutting across all hierarchies from surface to deep structure, and syntax as the bridge between structures, created by the transformational embedding process, it seems possible--even probable--that the poorer reader, stuck at the surface level, would be helped in traversing that bridge through writing. W. Smith (1970) found that there was a close match between what children could read with greatest ease and their syntactic maturity level. Stedman (1971) and Hughes (1975) found that it was the poorer

reader who benefited most from sentence-combining practice in reading comprehension, suggesting that improving poor readers' syntactic maturity may be one way of helping them to greater reading fluency. Stotsky (1975) in a comprehensive review of the research on the effects of sentence combining on written language development and reading comprehension suggests that the possibilities are rich for the use of writing activities for improvement of both writing and reading. She suggests that as children grapple with the more complex syntactic structures in an effort to write more coherently, that it is conceivable that such efforts would "contribute to as well as flow from their linguistic and intellectual development (p. 66)."

Free writing as a means of developing greater syntactic maturity:

James Britton, the noted British educator and psycholinguist, appears to support the assumption that practice in free writing does call forth innate linguistic resources that have been internalized from reading and which then interact with the resources derived from expressive speech. He also warns that "if we hasten that process or make it too deliberate, we may rob it of its effect." What is important, he suggests, is "to preserve the self in the writing (1972)." As the linguist Edward Sapir has noted, "language is learned early and piecemeal, in constant association with the colour and the requirements of actual contexts (1961, p. 10)."

It seems best, therefore, to keep learning within this natural setting by using materials from children's own free writing, i.e., from their own experience, if this natural process can achieve more productive use of linguistic resources. If large amounts of free writing, as practiced in the better schools of Nottingham, England, can show larger use of the available

linguistic structures identified as hallmarks of the better writers, the teachers would have an alternative to sentence combining as a means of achieving writing fluency, as well as for enhancing reading comprehension. At the same time, the "colour and the requirements of actual contexts" would not be lost, and, what is even more important, the self would be preserved in the writing.

It appears, then, that a cross-cultural study is a logical direction of inquiry, since heavy emphasis on free writing for the elementary-age child seems to be typical for British schools but not for those in the U.S. Looking at syntactic maturity cross-culturally should, therefore, prove fruitful.

Related research:

Although there are many studies within the U.S. which demonstrate the importance of syntactic maturity to writing and reading, especially via sentence combining, as has been stated, a search of the literature found no cross-cultural studies of children's syntactic development in writing. Neither did it find any data on the effectiveness of extensive amounts of free writing on children's syntactic growth. This study, then, which attempts to learn the effects of extensive writing experience on syntactic maturity by looking at British and U.S. children's use of these syntactic tools in the composing process, appears to open a new area of inquiry that may be of interest to researchers and educators.

CHAPTER 2. RESEARCH DESIGN AND PROCEDURES

Amount of writing and definition of writing:

For this study, writing experience is defined as a composing process in which students are largely responsible for organizing the thoughts as well as developing the ideas to be expressed. The term "free writing" has been used as a convenient label to designate the freedom of the writer to make the decisions necessary in the composing process. Its function could be any of those James Britton and others developed for the Schools Council Project on the written language of 11-18 year-olds:¹ expressive, as in a letter to a pen pal; transactional, as in a report on a topic under discussion; or spectator-poetic, as in a poem or story.

Amount of writing was determined by an interview with each teacher of the participating classrooms. For U.S. children, who usually wrote as a class from an assigned topic, the estimates would seem to be very close to the actual time spent per child. For British children, writing throughout the school day on an individual basis as well as on a class basis for some assignments, the teacher's estimate of average time spent for the class would have to be an approximation.

The measures used:

In the research studies of the past fifteen years on syntactic maturity, three measures emerge as the most useful and useable indices of language development: words per T-unit, words per clause, and clauses per T-unit. Hunt

¹ A thorough discussion of language functions can be found in James Britton's The Development of Writing Abilities (11-18), Schools Council Publications, 1975.

in his earlier study (1965) gave a critical evaluation of the traditional indices of language development and showed why the newer measurements (words per T-unit, words per clause, and clauses per T-unit) were superior to earlier measures. Hunt's terminable unit, which he shortened to T-unit, consists of one main clause and any subordinate clauses or phrases attached to the main clause. Its superiority as a measure of syntactic maturity over sentence length, especially with younger children, is that increase in length of sentence is complicated by variable punctuation, or lack of it, and by the immature use of and for younger children, which can increase length of sentence without increasing syntactic maturity level. The score was obtained by counting the total number of words in a composition and dividing by the number of T-units.

Clauses were defined as structures with a finite verb as well as a subject. Subordinate clauses would have the further distinction of being introduced by a subordinator, or of having one understood, e.g., I know [that] you will like the play. Hunt's distinctions between subordinators and coordinators on the basis of formal structure (1965, p. 75) were observed. Clause length was determined by a count of all clauses, main clauses and subordinate clauses. The total number of words of a composition was then divided by this total number of clauses to determine clause length. Clause length can reflect coordinate predicates--an early method of consolidating sentences--as well as the more sophisticated deletion transformations that reduce clauses to phrases. It is not surprising that Hunt (1970) found this measure more reliable than words per T-unit in measuring syntactic maturity of older children and adults.

Clauses per T-unit was secured by dividing the total clauses by the number of main clauses or T-units. It proved to be a good measure for indicating the amount of subordination used in the form of adverbial, relative, and nominal clauses.

Since norms have been established by Hunt for these measures, these served, too, as a basis for comparison. With so large a population (516 subjects), the three measures seemed to be the most feasible ones for measuring syntactic maturity, while still giving a high degree of reliability. The decision to use these measures was also supported by a critique of various indices of syntactic maturity by O'Donnell (1976), who suggested that on balance between precision and utility, the measures of words per T-unit, words per clause, and clauses per T-unit were probably the most useful measures. In his words, "It may turn out that in spite of lack of precision, T-unit length is still the most useful and useable index of syntactic development over a wide age-range and that mean clause length is the best single measure of syntactic complexity at the high school level and beyond (1976, p. 38)." A letter from Kellogg Hunt to the investigator made substantially the same recommendations.

The instruments: (See Appendix for copies of the instruments used.)

In order to control content in writing, not possible with free writing, two sentence-combining instruments were used for each age level of subjects (See The subjects). The 'Aluminum' instrument used by Kellogg Hunt (1970), on an expository subject familiar to both British and U.S. children, was used for older children, those aged 10-11. A similar instrument, but in a narrative-descriptive mode, was used for the older children. It was based on the TV

program Star Trek, popular in both countries and consisting, like 'Aluminum,' of a paragraph of very short sentences or "kernels" for sentence combining. 'Star Trek' was developed by W.S. Harpin, Lecturer in Education at the University of Nottingham, England, together with a graduate student who successfully used the instrument in her research with children in secondary school. For younger children, those aged 8-9, the 'Chicken' instrument used widely by Kellogg Hunt was used for the narrative-descriptive paragraph of sentences to combine. In order to have one on an expository subject for the younger children, similar to the 'Aluminum' paragraph for older children, one was devised by the investigator, 'Milk,' to round out the modes into the full spectrum of expository-narrative-descriptive.

Total number of words:

An approximate minimum of 100 words per instrument from each student was collected, i.e., 200 words from the sentence-combining paragraphs, plus approximately 100 words from one free-writing assignment per student (Somewhat less than this was expected from 8-9 year-olds and somewhat more from 10-11 year-olds). The number of words used was entirely at the discretion of each child, and no amount was stipulated to either child or teacher. It was expected that the children would complete the sentence-combining paragraphs in the time allotted (usually close to an hour), which they usually did. If a child were absent or did not complete the paragraph, the teacher would turn this in later, if possible. The total number of words per child to be analyzed, then, was approximately 300. For 516 subjects, this made a total of approximately 154,000 words, enough, it was felt, to provide significance to the findings.

The subjects of the study:

For this study school children between the ages of 8 and 9 were chosen for the beginning age, and between 10 and 11 for the ending age from each country. This meant third and fifth grade children in the U.S. and second and fourth level juniors in England.² U.S. third grade children were selected over those at a higher grade level as the starting age because of their greater adaptability as younger students to differences in instructional methods--in this case, to intensiveness of the writing experience. They were selected over those of an earlier age because third graders are by this time reasonably fluent in oral language and are also beginning to express themselves a little in writing, even though that little may be accomplished under protest. As Kellogg Hunt expressed his reasoning for bypassing third graders for writing samples and starting with the fourth:

Any parent who has tried to get his third grader to write thank you notes after Christmas knows that it is no harder to pull a tooth that isn't ready to come than to extract writing that isn't yet ready to come (1965, p. 2).

Since kindergartners are able to use all the structures used by seventh graders in their oral language, according to the research of O'Donnell et al. (1967, p. 88), it is interesting to speculate about what might happen if these third graders had been writing intensively since the age of five--as soon as they could hold a pencil in hand, as is the case with British children entering infant school. Might oral fluency, so conspicuous in the primary grades, be transferred to the written mode instead of being

²British children attend infant school between the ages of 5 and 7 and are, therefore, between the ages of 7 and 8 in their first year of junior school and 8 and 9 in their second year, the ages of third grade children in the U.S. Fourth level juniors with ages between 10 and 11 correspond to fifth-grade U.S. children in age.

delayed until grade five as it appears to be in the U.S., the time when the syntactic maturity of oral and written language coincides (O'Donnell et al., 1967, p. 50), or delayed until grade eight, the time when Loban (1976) found the complexity of writing began to take ascendancy over speech? It seemed a valid question to ponder. By fifth grade, after a two-year interim, the heavy writing emphasis of British elementary education should begin to make an appreciable and measurable difference in syntactic maturity if its influence is to be felt at all. Therefore, fifth grade seemed a good place to stop. It also seemed wise to concentrate a large enough population within a smaller age bracket so that early gains would be easily measurable.

Every effort was made to keep ages closely comparable in the two countries by timing the research in the matching schools of approximately equivalent socioeconomic levels so that the children would be at or about the same age level in each case. The British schools were given the research in the winter of 1976 and the U.S. children, in the winter of 1977. However, school closings because of snow in the U.S. did cause some minor problems. Below are the age means for the different levels from each country as these were matched. As can be seen, ages were closely matched for both the younger and older children.

Insert Table 1 about here

The schools:

The children participating in the study were from 19 classrooms in the two countries, England and the U.S. Eight classrooms were from two schools in the Nottingham area of England and eleven were from three schools in the Kalamazoo area of Michigan. The schools in England were chosen by the director

TABLE 1

COMPARISON OF MEAN AGES FOR THE 516 BRITISH AND UNITED STATES
CHILDREN IN THIS STUDY FOR COMPARABLE GRADE LEVELS

<u>The Younger Children</u>				
Country	Grade Level	SES	Number	Mean Age
U.S.	3	Middle	21	8.69
U.S.	3	Middle	21	8.98
U.S.	3	Middle	21	9.08
British	2	Middle	31	8.49*
British	2	Middle	32	8.30*
U.S.	3	Upper	24	8.23
U.S.	3	Upper	22	8.70
U.S.	3	Upper	16	9.29
British	2	Upper	37	9.05
British	2	Upper	36	8.87
<u>The Older Children</u>				
U.S.	5	Middle	26	11.02
U.S.	5	Middle	26	11.19
U.S.	5	Middle	26	10.89
British	4	Middle	30	10.42*
British	4	Middle	24	10.16*
U.S.	5	Upper	25	11.00
U.S.	5	Upper	26	10.95
British	4	Upper	35	11.01
British	4	Upper	37	10.98
Total = 516 for both age groups				

*Note: All chronological ages were recorded approximately five months earlier for the British school at the middle socio-economic level for both second level juniors and fourth level juniors. Therefore, approximately .42 should be added to the mean chronological ages for these children to adjust for the earlier time of recording. When this is done, the actual ages of the children for each comparable grade level were very close.

of a three-year longitudinal writing project just completed, involving nine schools in that area (Harpin et al., 1973) and included one of the schools participating in this project. An effort was made to secure schools with as low mobility as possible so that the children in the study would have similar backgrounds for the school under consideration, especially in exposure to writing. The intimate knowledge of the schools around Nottingham by the director of the British writing project just completed, William Harpin, made possible a closer matching of schools for this project than would have been possible otherwise.

For each country, a school (or schools) were chosen at each of the socioeconomic levels, middle and upper class. (It should be noted that "upper class" is probably a misnomer, since in both countries mainstreaming was practiced with about the same percentage of children introduced into the classrooms from other socioeconomic levels.) In England an upper class school from near the University of Nottingham was selected, rated upper class because of parental profession, neighborhood, facilities such as library, extra curricular activities, staffing, etc. In the U.S., the researcher chose one middle class school from her home town of Paw Paw (about 25 miles from Kalamazoo), rated as middle class by the principal and teaching staff, and generally known as a quality school. It seemed important to have the schools in the U.S. of good quality so that any differences between British and U.S. schools that might favor the British, if such be the case, could not be attributable to differences in teaching staffs, but rather to more fundamental differences, e.g., writing emphasis. This school provided six classrooms, three at the third grade level and three at fifth. The second school, an upper class primary school from the Kalamazoo Public School system, was selected for its quality

and informality, similar in many ways to the British primary and junior schools except for writing emphasis, and use of basals emphasizing reading skills rather than reading as process. It provided three classrooms at the third grade level. The third U.S. school was selected on the advice of the Director of Research (now Superintendent of Schools) for the Kalamazoo Public Schools as matching quite closely the upper class school close to the University of Nottingham. This school provided the two remaining fifth grade classrooms from this socioeconomic level. Because of the comparative nature of the study, the names of the schools are not indicated, but all are available to any interested researcher by writing the investigator.

Hypotheses being tested:

When one is contrasting the written language of children from two different countries, a multiplicity of hypotheses beg to be investigated. However, from these, only those seeming to be most crucial to children's syntactic development are considered. These hypotheses are as follows:

(1) British elementary children of a comparable age and socioeconomic level will write significantly more hours per week than their age counterparts in the U.S.

(2) Sentence-combining instruments will correlate significantly on all measures of syntactic maturity (words per T-unit, words per clause, and clauses per T-unit) with each other, but will not correlate significantly with free writing due to the variability in subject matter for the latter.

(3) British children of a comparable age and socioeconomic level will write longer free-writing compositions than will U.S. children.

(4) British elementary children of a comparable age and socioeconomic level will score significantly higher in syntactic maturity on all measures of syntactic maturity (W/T, W/C, and C/T) than their counterparts in the U.S. on the same measures.

(5) Hours of writing per week (HRSWW) will correlate significantly with syntactic maturity scores when these scores are compared for children from comparable groups (age, SES, and country) taking the same test.

(6) Children within a country at the upper socioeconomic (SES) level will test significantly higher on syntactic maturity measures than their age counterparts at the middle SES level.

(7) British boys and girls will not differ significantly on syntactic maturity scores in writing, and whatever non-significant differences that appear for younger children (ages 8-9) will largely disappear by the upper level (ages 10-11). For U.S. children, on the other hand, some significant differences will be found between the sexes, because previous U.S. researchers usually find some advantage to girls in writing, although not in speech.

(8) Reading comprehension percentile scores from standardized reading tests will correlate significantly with syntactic maturity scores on all dependent variables (W/T, W/C, and C/T).

Limitations of this study:

In setting up this study, it was the researcher's intent to control as much as possible any cultural variables in measuring the effect of intensive

writing vs. minimal writing on students' syntactic maturity scores. Therefore, in the original plan, a school in each country was to be chosen with heavy writing emphasis for that country, as well as one with low writing emphasis. A school with low writing emphasis in the Nottingham area of England was still available in 1975, the year before the study was begun. However, by the winter of 1976 when the study was begun, this school had followed the growing trend towards heavy emphasis on children's own composing, whether it be writing on a topic under discussion or writing a story or poem.³ The faculty at the School of Education, University of Nottingham, although working extensively with schools in the area, could think of no school which could qualify as having minimal amounts of writing by British standards--no more than 2 1/2 hrs. per week. It was finally decided to use a school from each socioeconomic bracket for each country and include this independent variable as one worthy of exploration. The same difficulty in reverse was a problem in the U.S.--to find a school with heavy writing emphasis--no less than 2 1/2 hrs. per week, although one classroom was found. Hence, socioeconomic level was substituted for minimum and maximum levels of writing emphasis.

A second limitation was the lack of I.Q. tests, which would have enabled a closer matching of students by intelligence quotients as well as by age. Schools in both countries expressed reluctance to give or use these tests. Since this study was concerned with group means rather than individual means,

³ Heavy emphasis on children's own composing is only one facet of the liberalizing trend in British education. Other aspects include the use of good literature, i.e., children's literature, the myths, adult poetry, instead of basals, the elimination of workbooks except for what the British call "maths," the grouping of desks so that children can work in groups as well as individually, the elimination of most testing, and the gradual shifting of responsibility for education onto the child by fourth level, if possible.

perhaps this was not as limiting a factor as it would otherwise be. In addition, a certain degree of homogeneity for each group was guaranteed by the process of eliminating any child or children atypical of the group because of variance in chronological or mental age, emotional stability, newness to the classroom, or similar reasons. These children were identified by the teacher, principal, or head, so that their scores could be eliminated, although they remained in the classroom for the tests.

Procedure:

Two sentence-combining instruments were administered to each class participating in the study, and one piece of free writing was picked up from each student. For upper level children the 'Aluminum' and 'Star Trek' paragraphs were the instruments used.

An hour was normally allotted for administering the sentence-combining paragraphs, and most children finished easily in this time, even though a portion of the time was used for orally explaining the purpose of the study and why their cooperation was needed, and a brief explanation was also given for the directions. There was some concern that the younger children, aged 8-9, might be confused by having written directions only and that they might simply copy the paragraph as given to them. (See the Appendix for copies of each instrument.) Therefore, a few kernel-type sentences were given orally to the class prior to the test, and the children were asked if they could think of better ways to say the same ideas. Examples were such sentences as "Mary had a pencil. The pencil was red." Children suggested such answers as "Mary had a red pencil"; "Mary had a pencil which was red"; and "Mary had a pencil, and it was red." When children were asked their preference, it was usually the briefer embedding, e.g., "Mary had a red pencil," but not always.

They were then asked to think about ways to make the sentences better in the 'Chicken' paragraph as it was being read to them, but not to respond orally. After this, the children had the rest of the time to complete their writing of the paragraph. As was stated earlier, if a child did not finish, the teacher sometimes turned in the paper later after it was finished. A few times the paper was left uncompleted because the child was tired and did not want to finish. The paper was scored with the others, since there usually was not very much difference between the way the last sentences were combined and the first ones. Frequently the child who did not complete was a poorer student who did much less combining than his or her classmates, causing the child to spend more time writing.

There was one problem in presenting directions orally to children in the area of Britain selected. This was the investigator's midwestern American dialect. The children appeared to be both fascinated and amused by it and seemed to be listening more to how the words were pronounced than to what the investigator was saying. To avoid confusion, the classroom teacher was asked to explain the procedure for the second paragraph if more than a few days intervened between the time the first and the second were administered. This procedure seemed to have the added advantage of normalizing the classroom environment for their work and seemed to be a good idea for both countries. The exact same procedures were followed in the U.S. as were used in Britain in order to keep as much consistency as possible between what was done in Britain and what was done in the U.S.

After the children's papers were typed, any garbles were eliminated before scoring. Scoring was then done by three graduate students and two

undergraduate students, all of whom were trained in linguistics or psycholinguistics as well as in the particular requirements of this study. Their work was then checked by two faculty members whose primary field of study was some branch of linguistics.⁴ All work, then, was double scored for accuracy and uniformity.

⁴The graduate students who performed the analyses were Ann Ware, Mary Kobreek, and Deborah Mack. The undergraduates were Carol Van Putten and Ady Gruis. Faculty members checking the scoring were Carolyn Ewoldt and the investigator.

CHAPTER 3. THE FINDINGS

Overview:

The various hypotheses under consideration will be discussed separately under each heading. However, some mention of the general findings is appropriate as an overview, although each will be discussed in some depth within this chapter.

One of the more surprising findings from this study is the large difference in amount of time spent on writing between U.S. and British children. The fact that British elementary children in this study average from two to three grades higher in syntactic maturity scores than U.S. children of comparable age is also surprising. In addition, reading comprehension percentiles from standardized tests correlated significantly with syntactic maturity scores, suggesting, at least, an advantage for the linguistically more mature British child. SES as a predictor of linguistic development turns out to be a more important factor for British boys and girls than for U.S. children, particularly for British boys. Sex differences in linguistic development largely favor girls in both countries, but are statistically non-significant. Two of the more startling findings are the length of compositions written by British second level juniors and their heavy use of subordination of clauses as compared to U.S. third graders, their age counterparts.

Hours per week in writing:

British elementary children in this study averaged an estimated 8 - 14 hours per week in the composing process. U.S. children, by contrast, spent from 1/2 hours per month to 2 1/2 hours per week in writing as defined in the study. British teachers and educators interviewed seemed to believe that the amount of writing found in this sample is quite typical of British schools

today. The amount of time spent in writing by the U.S. children in this sample, however, seems to be on the upper edge of what might be considered typical for U.S. schools, judging by the survey cited earlier and comments from teachers and educators. Below is a breakdown on the variable of hours per week in writing (HRSWW) between countries on both grade and socioeconomic level with two-sample t-statistics of differences between means. tTests for within each country for the same grade level but different socioeconomic level proved non-significant. See Table 2 for a comparison of British and United States children on hours per week of writing and the significance of these differences.

Insert Table 2 about here

As can be seen from Table 2, the differences are significant at every age and socioeconomic (SES) level. When both SES levels are considered together, the differences in HRSWW for British children as compared to their U.S. counterparts has a probability of less than .001, i.e., highly significant.

Correlation of tests used:

In order to correlate the sentence-combining tests with each other and with the free writing on each of the measures (W/T, W/C, and C/T), Pearson r correlations were obtained, using scores from those students taking all tests for each grade level. (For all other comparative data for this study, scores from all students taking tests were used.) Table 3 shows the high

TABLE 2

COMPARISON OF BRITISH AND UNITED STATES CHILDREN
ON HOURS PER WEEK OF WRITING

Country	Grade Level	SES	HRSWW* Mean	S.D.	t-value	Probability
British	2	Middle	12.50	2.121	8.709	p < .01
U.S.	3	Middle	.96	.954		
British	2	Upper	10.00	2.828	5.522	p = .01
U.S.	3	Upper	1.63	.375		
British	2	Middle & Upper	11.25	2.500	9.406	p < .001
U.S.	3	Middle & Upper	1.29	.744		
British	4	Middle	10.00	2.828	5.966	p < .01
U.S.	5	Middle	1.08	.144		
British	4	Upper	8.50	.707	3.871	p < .05
U.S.	5	Upper	1.81	.972		
British	4	Middle & Upper	9.25	1.893	8.829	p < .001
U.S.	5	Middle & Upper	1.38	.637		

degree of correlation that obtained among the sentence-combining tests on most of the scoring procedures, with significance at .01 in most cases.

Insert Table 3 about here

'Aluminum' and 'Star Trek' not only show a high degree of correlation within each test on the separate scoring procedures, i.e., W/T, W/C, and C/T, they also show high correlation between tests, with significance at .01 in all cases. For the younger children, 'Milk' fails to show significant correlation within the test between two of the scoring procedures, ML/WC with ML/CT. In contrast, however, 'Chicken' shows high significance (at .01) on all scoring procedures within the test. In view of the lack of inner consistency for the 'Milk' testing paragraph and the high consistency for the 'Chicken' paragraph, it is not too surprising that 'Chicken' and 'Milk' fail to correlate significantly on some measures (CH/CT with ML/CT; and CH/WC with ML/CT). In addition to their inner consistency on the scoring procedures, both 'Aluminum' and 'Chicken' also appear to elicit higher means for syntactic maturity than do 'Star Trek' or 'Milk' for the respective grade levels for which these tests were used. (See Figure 5 for syntactic maturity means.) 'Aluminum' for the older children and 'Chicken' for the younger ones appeared to be the better tests and were, therefore, the ones used in examining each hypothesis in order to limit the amount of data handled.

That the free writing fails to correlate significantly with most of the sentence-combining tests is not surprising, especially at the younger level. It is well known that differing subject matter elicits differing syntactic

TABLE 3

PEARSON CORRELATION FOR SCORES ON ALL TESTS (CH, ML, AL, ST)
WITH ALL SCORING PROCEDURE (W/T, W/C, and C/T)

N = 163				N = 173			
CH W/T	with	CH W/C	= .90122**	AL W/T	with	AL W/C	= .57128**
CH W/T	with	CH C/T	= .73656**	AL W/T	with	AL C/T	= .95707**
CH W/T	with	ML W/T	= .57190**	AL W/T	with	ST W/T	= .48901**
CH W/T	with	ML W/C	= .49386**	AL W/T	with	ST W/C	= .33563**
CH W/C	with	ML W/T	= .48616**	AL W/T	with	ST C/T	= .46250**
CH W/C	with	ML W/C	= .43771**	AL W/C	with	AL C/T	= .36221**
CH C/T	with	CH W/C	= .37926**	AL W/C	with	ST W/C	= .55435**
CH C/T	with	ML W/T	= .47968**	AL W/C	with	ST C/T	= .38606**
CH C/T	with	ML W/C	= .39555**	AL W/C	with	FW W/T	= .20025*
CH C/T	with	ML C/T	= .11081	AL C/T	with	ST W/T	= .43619**
CH W/C	with	ML C/T	= .08896	AL C/T	with	ST W/C	= .24541**
ML W/T	with	ML W/C	= .75066**	AL C/T	with	ST C/T	= .46820**
ML W/T	with	ML C/T	= .32432**	ST W/T	with	ST W/C	= .80669**
ML W/C	with	ML C/T	= .04470	ST W/T	with	ST C/T	= .79554**
FW W/T	with	FW W/C	= .78584**	ST W/C	with	ST C/T	= .30417**
FW W/C	with	FW C/T	= .63567**	FW W/C	with	FW W/T	= .59683**
				FW C/T	with	FW W/T	= .45054**

df = 150

Values of 4 at .05 (.159), at .01 (.210)

* = significance at .05

** = significance at .01

Note. The four tests are: Chicken (CH), Milk (ML), Aluminum (AL), and Star Trek (ST); the three scoring procedures are: Words per T-unit (W/T), Words per Clause (W/C), and Clauses per T-unit (C/T).

forms. With only one piece of free writing obtained from each child, there could be no assurance that the variability caused by choice of subject could be controlled in the free writing as in the sentence combining. In addition, the number of words in U.S. third-graders' compositions turned out to be so minimal, sometimes only one sentence in length, that scores became too divergent to be useful for purposes of comparison. For example, one third grader wrote in response to the suggestion that the children compose a letter to George Washington on his birthday, telling him what things are like today: "Dear George Washington, A tv has been invented and the light bulb. Your friend, (child's name)." Sometimes the teacher provided a story starter and the children supplied lists of items or events coordinated with and to complete it. Sometimes these amounted to large scores in words per T-unit and words per clause, giving a distorted picture of the child's true capability, based as it was on one or two sentences, a part of which was supplied by the teacher. Free writing was therefore dropped as a testing instrument. The inclusion of free writing in the study, however, became validated by the insights it provided into length of compositions and general quality (See Free Writing: fluency and overall quality.)

Free writing: fluency and overall quality:

One of the surprising findings of this study is the length and quality of British children's free writing when compared to the compositions of U.S. children of the same age. See Table 4 for a comparison of the two groups on number of words per composition.

Insert Table 4 about here

The British longitudinal study of writing mentioned earlier (Harpin et al., 1973) found strong support for the hypothesis that amount of writing will increase with age (p. 48). However, the results of the present study indicate also that factors other than age must influence writing production. As indicated on Table 5, British children on the average write compositions which are approximately twice as long as those of U.S. children of the same age and SES level. One exception is the British school at the middle SES and upper grade level, where poetry is the chief medium for free writing. One class from this school wrote almost exclusively poetry. From the other class in this school at the same grade level, 8 of the 33 compositions were poems. The total number of words per composition was probably reduced by the frequent choice of poetry as a medium of expression, since poetry is normally a more abbreviated and condensed genre than is the story, the form chosen by all U.S. children in their free writing at this grade and SES level.¹

The influence of the choice of poetry on composition length is probably a factor again for the younger children in the upper class British school. One British class at this level used poems as a part of an art/science project on weather for their free writing. The other British class wrote stories averaging 306 words per story. Averaging the two classes brought the total for the British children down to 179 words per composition. The

¹This same British school is mentioned in the study by Harpin and associates (p. 47) as having briefer compositions than the other eight schools participating. In this study, too, it is hypothesized that the choice of poetry as a medium of expression for the free writing might be responsible for the more limited output.

TABLE 4

A COMPARISON OF BRITISH AND UNITED STATES GROUPS ON
NUMBER OF WORDS PER COMPOSITION FOR FREE WRITING

COUNTRY	GRADE LEVEL	SES	NUMBER OF WORDS MEAN
British	2	Middle	115
United States	3	Middle	49
British	2	Upper	179
United States	3	Upper	79
British	4	Middle	152
United States	5	Middle	153
British	4	Upper	236
United States	5	Upper	116

average for U.S. children, none of whom chose poetry, is 79 words per composition at this grade and SES level. One might speculate that had both British classes chosen prose rather than poetry, the difference between the British and U.S. children might be even larger in total word output.

The idea that children aged eight to nine are not yet old enough to write lengthy compositions--an idea frequently stated in U.S. research--may need to be reexamined in light of the quantity of writing these younger children in Britain produce at both SES levels. It appears that curriculum as well as age is a factor in determining fluency.

Quality for British children's free writing is also high. One is sometimes surprised that the British and U.S. children compared in this study are, in fact, age counterparts, since the British writing seems so much more mature. However, one must be cautious in drawing firm conclusions with only one piece of free writing obtained from each child, since subject matter is an important determinant of both rhetorical form and syntactic choices. However, the impression left on those reading and scoring the writing is that the British child has developed a stronger sense of literary conventions and uses more sophisticated syntactic forms than U.S. children of comparable age. The stories, for example, seem to have a good sense of beginning, middle, and end, and move forward by some ordering principle with an inner cohesiveness provided by use of transitions. The following story by a girl at the second level of the upper SES school is characteristic, in many ways, of the writing by younger children at both SES levels in Britain. The title of the story is one of the topics suggested

by her teacher. The spelling and punctuation are unaltered. Whenever the meaning might be unclear because of an omission or substitution of a letter or letters, brackets ([]) enclose the intended word to facilitate ease of reading. Superscript numerals refer to syntactic constructions.

The Mouse in the Piano

One day when I had finished feeding my mouse I accidentally left the cage door open. I forgot to shut it because my Mum told my [me] to fetch her duster. When I had taken it to her I went outside to play. When my mouse (who was called Creepy) found the cage unlocked he pushed the door open, got out of the cage, and scampered across the floor to the door. He went straight to the piano because it was a dark place to hide in.¹ As soon as I remembered that the cage door was unlocked, I rushed into the house like the wind. When I got to the cage I was very upset because the cage was empty. That night I went to bed very sadly because of the loss of Creepy. I was awake for about two minutes and then I went to sleep. At about midnight a sound woke me up. I sat up and listened again. The sound went TINK TINK A TINK. I was very frightened. I put on my dressing gown and quietly crept downstairs. I heard the sound again and shived [shivered]. I couldn't find where the noise was coming from, so I quietly crept back into my warm bed.

When I was having my breakfast the next morning, I told my Dad about the noise and he said that he had heard it too. Meanwhile back in the piano Creepy was making the noise every night by walking on the wires² inside the piano.³ Every day when I was playing I kept wondering if Creepy had got out of the house and been run over or had been stolen if he had got into the garden. I put the cage out in the garden that night, and every night when I went to bed I heard the noise. I thought it must be a ghost walking around the house⁴ frightening everyone.⁵ One day when I was shopping I saw a little mouse in the pet shop that looked just like Creepy. My Mum wouldn't let my [me] buy it until one week had gone, because Creepy might come back to me. One [on] the fifth day my Mum was dusting the piano when she looked inside and saw two eyes looking at her.⁶ She lifted it out and called to me to come quickly. I was very happy when I went to Mum because in her hand was Creepy. My Dad fetched the cage and I put him in. Whenever Mum was bored I told her the story of the mouse in the piano.

This piece of writing is clearly not just a list of some things that happened. It deals with possibilities, as well. There is also a sense of rhetorical form in this child's story, with rising action, supportive detail, and a denouement.

Not only does this piece of free writing evidence a familiarity with story structure, it also indicates syntactic maturity in its abundant use of subordinate clauses for transition and in its use of constructions normally considered by U.S. researchers to be associated with the writing of adults or older children. For brevity, only the latter will be noted. These constructions are numbered below to correspond to the superscripts in the story.

- 1) a dark place to hide in [infinitive modifier of a noun]
- 2) by walking on the wires [gerund as object of a preposition]
- 3) the wires inside the piano [prepositional phrase as a noun modifier]
- 4) a ghost walking around the house [a participle as noun modifier]
- 5) a ghost ... frightening everyone [a participle as noun modifier]
- 6) two eyes looking at her [a participle as noun modifier]

Few U.S. children at this younger age level wrote what might be considered stories in the sense of having characters with needs of their own or a developmental sequence. A number did, however, list happenings that were usually not interdependent--one causing another as in plot development--but were, nonetheless, often imaginative and humorous. The following piece of free writing by a third-grade boy in an upper SES classroom illustrates the tendency to coordinate predicates found in much of the writing at this age level among U.S. children. The writing is unaltered, with capitalization and spelling just as the child handled these in the original.

If I were an animal I would Be a parrakeet Because I could fly up in high places where nobody could Bother me, do tricks, learn tricks, sit in a cage, watch the people, learn to talk and look at myself in the mirror.

The high score of 44 words per T-unit in this piece of writing (one of the higher scoring pieces) conceals the heavy use of coordination, a construction used early in children's writing. There are in addition, however, three subordinate clauses, one of which was supplied by the teacher as the topic. Although somewhat briefer than the average, the writing is humorous and lively. Yet it is largely a list, without development, and with syntactic constructions that reflect an early stage of maturity.

The infrequency of the more adult syntactic forms in the free writing of U.S. children in this study as compared to its frequency in many of the British samples of writing is an indication, at least, that the British children can use these forms and do use them. It may not mean that U.S. children cannot do so, although other indications of superiority of British children, e.g., their scores on the sentence-combining tests, suggest that the British children ought to be more mature in their free writing as well. The wide variety of topics for the free writing and the lack of correlation with the sentence-combining tests mean that scores for this component would be of little value. The inflated score on the sample of writing by the U.S. third grader given above is a case in point. With U.S. children writing so briefly, there is no assurance, either, that any complexity of syntax found in one-, two-, and three-sentence compositions could be maintained over a longer piece of writing.

Hypothesis 3, then, is largely accepted--that British children of a comparable age and socioeconomic level will write longer free-writing compositions than U.S. children. It is accepted without qualifications if one can positively state that stories are necessarily longer than poems. The

hypothesis might be extended to include the statement that British children, based on the samples of free writing contained in this study, also write compositions of greater quality than U.S. children of comparable age and SES level. However, more than one piece of free writing per child is needed for reliable comparisons.

A comparison of British and U.S. children's syntactic maturity:

Research has shown that accruals in syntactic development, as measured by W/T, W/C, and C/T, travel at a pedestrian rate from grade to grade, with normal development in the fraction of a word, as a rule. For these reasons, growth has usually been determined in two-grade intervals. To determine significance of the differences between British children and U.S. children, therefore, t-tests for the differences between means were run on each variable for each level on each testing instrument. Table 5 shows the results of these tests.

Insert Table 5 about here

As can be seen, differences between the means for British and U.S. children on both tests for the older group, ages 10-11, show significance in all cases. On the 'Aluminum' test, which appeared to offer both groups maximum opportunities for subordination of clauses and the British children opportunities for increasing clause length as well, the differences between groups show probabilities of less than .001, a whopping difference.

For the younger children, ages 8-9, British second level juniors show significantly higher scores on all measures except for words per clause on the 'Chicken' instrument. This testing instrument seems to offer opportunities

TABLE 5

COMPARISON OF BRITISH AND UNITED STATES CHILDREN
ON FOUR TESTS WITH THE THREE SCORING PROCEDURES

COUNTRY	NUMBER	GRADE LEVEL	VARIABLE	MEAN	t	p
British	118	2	CH W/T	6.84	-2.094	p < .05
U.S.	107	3	CH W/T	6.46		
British	118	2	CH W/C	6.04	- .1805	NS
U.S.	107	3	CH W/C	6.02		
British	118	2	CH C/T	1.13	-4.339	p < .001
U.S.	107	3	CH C/T	1.07		
British	115	2	ML W/T	6.25	-4.278	p < .001
U.S.	108	3	ML W/T	5.51		
British	115	2	ML W/C	5.47	-2.400	p < .05
U.S.	108	3	ML W/C	5.19		
British	115	2	ML C/T	1.14	-3.904	p < .001
U.S.	108	3	ML C/T	1.06		
British	109	4	AL W/T	9.27	-5.120	p < .001
U.S.	116	5	AL W/T	6.77		
British	109	4	AL W/C	6.13	-5.119	p < .001
U.S.	116	5	AL W/C	5.52		
British	109	4	AL C/T	1.47	-4.223	p < .001
U.S.	116	5	AL C/T	1.22		
British	116	4	ST W/T	6.97	-2.833	p < .01
U.S.	115	5	ST W/T	6.44		
British	116	4	ST W/C	6.07	-1.968	p = .05
U.S.	115	5	ST W/C	5.86		
British	116	4	ST C/T	1.14	-2.456	p < .05
U.S.	115	5	ST C/T	1.09		

both for coordination within the predicate [He grew vegetables + He grew grain]
InputInput

→ He grew vegetables and grain. and for the use of subordinate clauses:

[He could feed her in the morning + He could feed her at night + Maybe she
Input Input Input
would lay two eggs every morning -> If he could feed her in the morning and at
Output

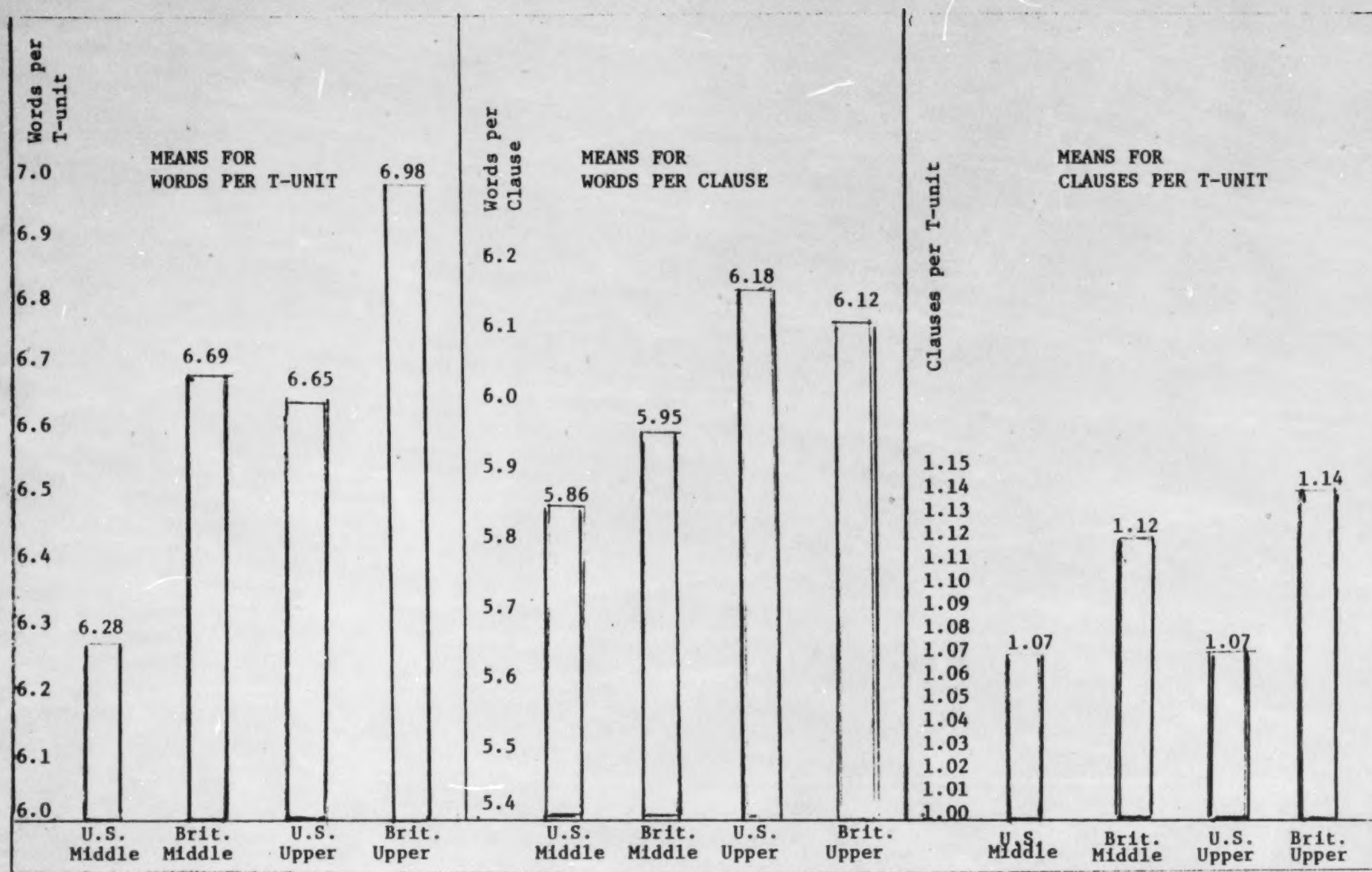
children took advantage of the opportunities for coordination, but British children also used the opportunities for subordination of clauses to a significant degree. It seems very possible that the heavy use of the subordinate clause found in U.S. children's speech in kindergarten and the early grades by researchers (See especially O'Donnell et al., 1967) might also be true of British children, and that this ability to subordinate clauses moves over from oral language to the written language for them because of the intensive writing practiced by these children all through the elementary years. At least, for some reason, British children made extensive use of subordinate clauses at both the primary and middle-school levels and in both the sentence-combining and free writing. Also noteworthy was their use of transition words and phrases to give their sentence-combining greater cohesiveness.

Insert Figure 1 about here

The heaviest use of subordination of clauses appears to be by British upper SES children (See Figures 1 and 2). It is interesting to compare British and U.S. children on the basis of Hunt's norms on the 'Aluminum' instrument, as indicated by the shaded part of each bar graph in Figure 2. Since his norms are based on a two-year interval, starting with grade 4

FIGURE 1

COMPARISON OF MEANS ON CHICKEN TEST FOR BRITISH AND UNITED STATES CHILDREN (AGES 8-9)
BY SOCIOECONOMIC STATUS, USING THE THREE SCORING PROCEDURES



(Hunt, 1970, p. 20), norms for grades not given have been computed. Both British and U.S. children scored higher than the computed fifth-grade norms of 6.13 W/T, 5.48 W/C, and 1.11 C/T, except for U.S. upper SES children on W/C, who scored the same.

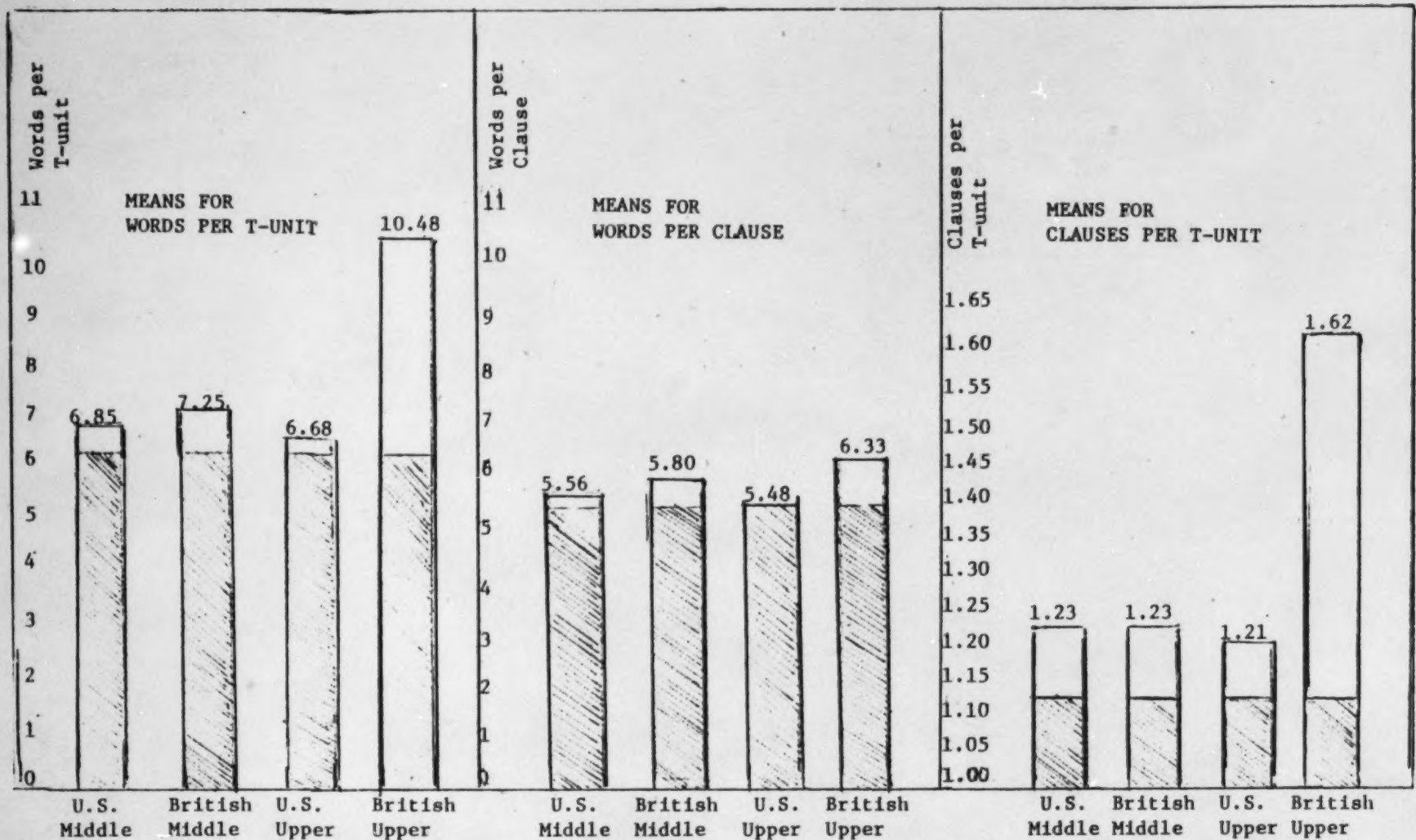
Insert Figure 2 about here

It is interesting that British upper SES children exceeded the norm by two to five or more grade levels. In W/T, the 10.48 mean for British upper SES children exceeds slightly Hunt's mean for U.S. tenth graders (10.44 W/T); and their 1.62 mean for C/T exceeds slightly Hunt's mean for skilled adults (1.51). Their mean for W/C of 6.33 slightly exceeds a computed mean for seventh grade of 6.28 (from Hunt's sixth and eighth grade norms). On the other hand, U.S. upper level children hover close to grade level except for C/T, in which they exceed slightly the 1.82 mean for sixth grade, i.e., they are either at grade level or one grade level higher on the three scoring procedures (W/T, W/C, and C/T). U.S. fifth grade children seem to be approximately one grade level higher in W/T and C/T, with Hunt's norms for 6th grade at 6.84 W/T against theirs of 6.85, and 1.18 C/T against theirs of 1.23. On W/C, however, they hover only slightly above the computed mean for fifth grade of 5.48, with theirs of 5.56.

British averages for both SES levels for the older children, ages 10-11, run approximately 2-3 grades or more higher than Hunt's norms. On W/T the British fourth level juniors mean of 9.27 comes closer to Hunt's norms for U.S. grade 8 of 9.84 than the computed norm for grade 7 of 8.34, approximately three grades above norm. On W/C the British mean of 6.13 is almost equivalent

FIGURE 2

COMPARISON OF MEANS ON ALUMINUM TEST FOR BRITISH AND UNITED STATES CHILDREN (AGES 10-11)
BY SOCIOECONOMIC STATUS, USING THE THREE SCORING PROCEDURES, WITH HUNT'S NORMS
BEING SHOWN BY THE SHADED PORTION OF EACH BAR*



*Hunt's norms for fifth grade are averaged from the means for grades four and six (all groups for these grades); these are 6.13 W/T, 5.48 W/C, and 1.11 C/T, as indicated by the shading.

Note: Scales for W/T, W/C, and C/T on the children taking the Aluminum test (ages 10-11) are at wider intervals than on Table 1 for the younger children, to accommodate for the higher scores made by this age group.

to the computed grade 7 norm of 6.28, approximately two grades above norm. On C/T at a mean of 1.47, these British children are at the mean for Hunt's average adults (1.47), i.e., many grades above norm.

British middle SES children at the upper grade level are particularly interesting because of the heavy poetry emphasis in this school. The use of poetry has already been mentioned in connection with the length of free compositions. It seems to have an additional influence on words per clause, with 5.80 W/C against Hunt's sixth grade norm of 5.76. What seems more interesting is the use of the more mature forms in achieving this clause length. Although a full scoring of these was not made, the presence of a few of the maturer forms was counted as indicators. In both of the classes at this level, nearly one-half of the children prepositioned the adjective abundant before the word metal in the 'Aluminum' sentence-combining, and almost one-third reduced the clause which has many uses to less than clause length, i.e., to with/of many uses. The input sentences (Aluminum is a metal + It is abundant + It has many uses) would become Aluminum is an abundant metal with/of many uses.

The highest scoring U.S. class used these same forms slightly over one-third and one-fifth of the time, respectively. The British children, in addition, seemed to use transition words frequently, as mentioned earlier. For example, such sentences as the following occurred frequently:

After they have filtered it a liquid remains. They then put it through several other processes until finally it yields a white powdery chemical called alumina./ Then using filters, they take the mass out./ So the workmen separate them by using electricity.

The verbal forms that Francis Christensen has selected as particularly indicative of adult writing appear very frequently in the poetry produced

by these children. Below is a representative poem from these classrooms.

The Cat

Slowly the cat crept forward
Feeling, eyes searching, ears tensed.
The silent pad of his feet
Clambering over things.
Suddenly his nose picks up mouse scent.
Slowly, he moves forward,
Then pounces
And the mouse is gone.

Fourth level boy

It cannot be proved, but it is interesting to speculate that poetry writing may be a way of moving children into the more tightly coiled, more compact syntactic forms earlier, without first going through the usual preliminary stages of linguistic development. If so, the benefits derived in the acquisition of mature syntax along with the aesthetic joy in writing poetry would bring double dividends.

Hypothesis 4 states that British elementary children of a comparable age and socioeconomic level will score significantly higher in syntactic maturity on all dependent variables (W/T, W/C/ and C/T) than their counterparts in the U.S. on the same instrument. The findings from this study confirm this hypothesis except for the younger children on one measure, words per clause on the 'Chicken' instrument. On the average, the British seem to be from two to three grades or more ahead of U.S. children in linguistic development.

It is interesting that there are still a few children among the higher-scoring British who seem unable to achieve the syntactic complexity of their classmates, although their numbers are few by comparison with U.S. children in the sample. Possibly these are children who do not make the generalizations about language necessary for syntactic development, and for whom sentence combining on an individual or group basis might be needed. On the whole,

however, the heavy writing emphasis given British children in this population sample seems to provide sufficient impetus for rapid syntactic development, especially in combination with membership in the upper socioeconomic group. Further cross-cultural studies would be needed to be certain, however, that other factors, educational or cultural, are not also contributing to the rapid linguistic development of these children.

Correlation of HRSWW with syntactic maturity scores:

Certainly British elementary children in this sample spend significantly more time in writing than their U.S. counterparts. British children also score significantly higher in syntactic maturity. The evidence points in the direction of a correlation between the two. Unfortunately, as was explained earlier, no cause-to-effect relationship could be established in the absence in either country of a school that would be atypical for that country in the emphasis (or lack of it) on writing. Such a school, if it could have been found, would have screened out the variable of cultural influence.

However, the possibility presented itself for finding two classrooms within the same grade-level and SES-level and country, differing sufficiently in HRSWW to indicate the fruitfulness of further inquiry into the correlation between HRSWW and syntactic maturity. Although in this study most classes within a country, a grade level, and a SES level were largely homogeneous in hours of week spent in writing, the two U.S. upper class 5th grade classes differed by one hour per week in HRSWW, one class spending $1 \frac{1}{4}$ HRSWW, and the other class spending $2 \frac{1}{2}$ HRSWW. Such a difference is not large considering the vast differences between countries, but yet noteworthy, especially since the quality of the free writing from the two classrooms appeared to favor the one with more

writing. There were also some differences in HRSWW for the U.S. middle class school at fifth-grade level, although not as much as for the classrooms at the upper SES level.

A linear regression analysis was run to see whether there might be any statistical evidence to support the idea of hours of week in writing as a pivotal factor in syntactic maturity scores. Although no statistically significant correlations were found for most classes between HRSWW and scores on tests within each country, as was expected because of the homogeneity in HRSWW, the two classrooms noted did show some interesting findings. The positive correlation between HRSWW and scores on C/T for 'Star Trek' showed a probability of $< .05$, and for C/T for the Free Writing, a probability of $< .001$. Combining the two upper SES classrooms with those at the middle SES level for fifth grade, C/T for 'Star Trek' showed a probability of $< .01$ and the Free Writing on the same measure (C/T), $< .001$.

The results suggest that perhaps even on limited differences in amounts of writing such as exist between $1\frac{1}{4}$ and $2\frac{1}{2}$ HRSWW, that greater use of subordination of clauses correlates positively with more time spent in writing at the fifth grade level. However, more data within a country where differences in amounts of writing are larger would need to be collected to do more than speculate. Other factors, too, may play a role in addition to HRSWW in influencing syntactic maturity.

Socioeconomic status and syntactic maturity:

Hypothesis 6 states: "Children within a country at the upper socioeconomic level will test significantly higher on syntactic maturity measures than their age counterparts at the middle socioeconomic level." The findings support this hypothesis for the younger children. However, one surprising result from the data is the variable influence of SES for the older children, those aged 10-11.

Walter Loban in his longitudinal study (1976) concluded that it was SES, and not innate ability, that correlates with membership in the high group in language, the group displaying more complexity of language as well as greater use of its resources. If one looks at the results of SES on the British child in this study at either age level, this assumption would seem to be born out. (See Figures 1 and 2.) In Figure 2, for example, we see British upper class children, ages 10-11, greatly exceeding British middle SES children of the same age on all scores, as well as outdistancing U.S. children at both SES levels by an even greater margin. O'Donnell, et al. (1967, p. 60) found that kindergarten children in their speech used relative clauses more frequently than at any other age, as mentioned earlier. Interestingly, in this same study the researchers found that writing did not catch up with speech in syntactic complexity until grade 5, and Loban (1976) would place the point where writing overtakes speech closer to grade 7. If British children are like U.S. children in using all of the syntactic forms in their speech at kindergarten age, and in using relative clauses more frequently in their speech at this age than do older children, it certainly seems probable that heavy writing emphasis moves these more sophisticated forms over into writing, especially for the upper SES British children, who approximate adults on their syntactic

maturity scores for some measures (See Figure 2). It would seem that the lag between speech and writing is much less for these children than for U.S. children at the middle grades for either SES level.

As can be seen from Figures 1 and 2, the findings from this cross-cultural study indicate that while SES is a factor in early language development, it is not a guarantee to membership into the high group in syntactic maturity, not at least for U.S. children by fifth grade level, where upper SES children actually fall behind children in the middle SES level. This study, then, does not bear out Loban's findings, at least for older children. Rather, it approximates more closely the conclusions reached by Carol Chomsky (1972, p. 28) that SES is a factor most closely linked with higher linguistic stage for younger children and is less of a differentiating factor among older children. In her study of children in grades K-4, she found that after the initial impetus of SES on children through more exposure to books, especially books of greater language complexity, it seemed to be the child's own activity that determined linguistic stage and not SES, when IQ and age were held roughly equivalent for the children studied.

What factor or factors help British children maintain their early advantage, especially in combination with SES? And does this factor (or factors) also help explain why U.S. upper class children by the middle grades make no better showing than children from middle class families? Other researchers have noted the unimpressive gains in syntactic control for U.S. children in the middle grades, as (although the middle SES children in the U.S. made gains that were not unimpressive). O'Donnell *et al.* (1967, p. 100) speculates that it may be the function of the educational program

during the middle years that retards syntactic growth. Such seems to be the case. Possibly, and even probably, one factor that could account for the continued gain by British children in linguistic development may be the heavy emphasis on writing, putting as it does, into daily practice the more complex linguistic forms encountered in the children's reading of literature. Writing may also be a highly motivating factor, not only because it is active and creative, but because it gives the children an opportunity to vent their feelings and organize their own thoughts. The well-filled journals in the desks of British elementary children attest to this fact. By the same line of reasoning, perhaps the highly structured environment of basals and workbooks for U.S. children dulls the motivation of the child at the upper socioeconomic level, and the end results is to slow or negate the early impetus given by membership in this class.

Sex differences and syntactic maturity:

A cross-cultural study seems to invite consideration of sex as a variable in syntactic maturity scores, since much of the recent data suggests that differences between the sexes in language are largely culturally induced. England, in particular, is a country which continuously reports findings of similarities in language use between boys and girls and thus provides an interesting contrast to the U.S., a country which continues to report differences between the sexes in language use. In England, for example, regular government surveys of reading achievement have shown no significant differences between the sexes. This finding is also supported by an independent researcher (Morris, 1966), who comes to the same conclusion. In the U.S., on the other hand, it is well known that boys consistently lag girls in reading attainment.

In writing, also, data across cultures show contrast. Donald Graves (1973) finds that U.S. seven-year-old girls choose first person more often than third person, while boys of the same age choose third person more often than first in their writing, with only the maturer child of either sex breaking out of this pattern. Research by Bodkin with U.S. third- and sixth-graders found this same pattern still existing (Bodkin, 1975). In England, however, both boys and girls are found to have a preference for the third person in their early writing, gradually moving to more use of first person by their fourth year of junior school, at which time they use both pronouns with about equal preference (Harpin, 1976, 153-154).

Interestingly, in the same study cited above, the group of boys and girls identified as the silent, more introspective and less talkative children, were the ones using first person early. This group consisted of about equal numbers of boys and girls. They were also the ones who wrote more, possibly finding in writing a more congenial mode of expression. The talkative children, on the other hand, wrote less. Different cultures apparently permit differing behavioural faces to be exposed to the public view by boys and girls. In the U.S. it is fairly well established that girls are found to be less fluent and less mature in speech, but more fluent and more mature in writing, while boys present the opposite picture. (See the discussion of this in O'Donnell, et al., 1967, p. 96.) There is also evidence that in the U.S. girls see their roles, even into adolescence, as restricted to the primary territory of self, home, and neighborhood, while boys operate during this same period in secondary territory (Graves, 1973; Bodkin, 1975). In addition, a body of recent literature suggests that girls may also be the more silent,

introspective group, that is, girls growing up in the United States.² In view of differing cross-cultural findings, it seemed valuable to determine whether sex differences in linguistic development for writing existed in each country, and if so, whether these differences were more prominent in the U.S., where language appears to be more sex-linked than in Britain. It was hypothesized that they would.

To learn the extent to which sex might be a factor in syntactic maturity, each individual's means on each scoring procedure (W/T, W/C, and C/T) on the 'Chicken' and the 'Aluminum' tests, the tests already identified as more sensitive, were further subdivided by sex and by socioeconomic status, in view of the influence of SES already found.

²In the past few years a number of sociolinguists have pointed to data that suggests that U.S. girls are conditioned to see themselves as spectators rather than as participators in life. As spectators, then, they would tend to speak less. Robin Lakoff, a psycholinguist, makes a good case for the conditioning of girls to be ineffectual in their speech in order to be "feminine," e.g., to use qualifiers, to express tentativeness, especially through the use of the tag question (It is raining, isn't it?), and politely to refrain from any assertiveness. The better they learn their lesson, she states, the more they are removed from the real concerns of life (Lakoff, 1975). Others mention the silencing of girls. See especially "How Nursery Schools Teach Girls to Shut up" (Serbin & O'Leary, 1975). In further support of U.S. girls as the more silent, introspective group, sociolinguists have noted the linguistic insecurity of girls, starting about adolescence or sixth grade level, about the time they view themselves apart from the power structure as adults (Bailey, 1973, p. 390). Labov in his monumental study The Stratification of Grammar in New York City (Labov, 1966) found women to be the group most linguistically insecure, the need for correctness most noticeable in those most in need of status. Females growing up in the U.S. have also had to face the disadvantage of the negative image of themselves reinforced by basal readers. For example, Graves (1973) found no instance of girls being exposed to the extended vocational roles of modern women in the basals used by the school where he observed children's writing during the four months of his daily observations of children. British children, on the other hand, appear to use children's literature rather than basals and may, therefore, have a more realistic view of their sexual identity.

tTests were constructed to determine differences between the sexes for each grade level and SES level within a country as well as for overall differences within each country at each grade level. The results are, in part, as predicted, but they also turn up some surprising findings. (See Table 6.)

Insert Table 6 about here

The means for females for each country consistently stayed higher than the means for males except for words per clause for U.S. children at the fifth-grade level. However, in each case, they proved non-significant statistically, although the differences seemed substantial, e.g., 8.36 W/T for British males at 4th level and 10.06 W/T for British females at 4th level. Females from both countries were also the top scorers at the ratio of 14 to 5 in the 19 classrooms on words per T-unit for the 'Chicken' and 'Aluminum' tests. The top scores on words per clause and clauses per T-unit were more evenly divided between males and females: 10 males to 9 females for W/C, and 10 females to 9 males on C/T. In general, females seemed to use subordinate clauses more often than males, although the differences were non-significant. This research dovetails with that done at the University of Nottingham (Harpin, 1973) in which females demonstrated greater use of subordinate clauses than males in their free writing.

What turns out to be particularly significant is the effect of SES on the scores of males, in particular, but also on the scores of females on C/T (See Table 6). Why SES is so great a stimulant to British males in their language use is a matter of speculation. One possibility is that the social adjustment

TABLE 6

COMPARISON OF BRITISH AND UNITED STATES GROUPS OF SIMILAR SES AND SEX
ON EACH SCORING PROCEDURE FOR THE ALUMINUM TEST*

Country	Sex	Grade Level	SES	Scoring Procedure	Mean	t	p
British	Male	4	Middle	W/T	6.40	3.015	p <.01
British	Male	4	Upper	W/T	9.85		
U.S.	Male	5	Middle	W/T	6.72	-.3968	NS
U.S.	Male	5	Upper	W/T	6.52		
British	Female	4	Middle	W/T	8.24	1.873	NS
British	Female	4	Upper	W/T	10.95		
U.S.	Female	5	Middle	W/T	6.98	-.4160	NS
U.S.	Female	5	Upper	W/T	6.80		
British	Male	4	Middle	W/C	5.49	3.295	p <.01
British	Male	4	Upper	W/C	6.28		
U.S.	Male	5	Middle	W/C	5.64	-.8664	NS
U.S.	Male	5	Upper	W/C	5.44		
British	Female	4	Middle	W/C	6.15	.7329	NS
British	Female	4	Upper	W/C	6.37		
U.S.	Female	5	Middle	W/C	5.47	.2723	NS
U.S.	Female	5	Upper	W/C	5.52		
British	Male	4	Middle	C/T	1.16	2.957	p <.01
British	Male	4	Upper	C/T	1.54		
U.S.	Male	5	Middle	C/T	1.19	-.3101	NS
U.S.	Male	5	Upper	C/T	1.18		
British	Female	4	Middle	C/T	1.31	2.012	p <.05
British	Female	4	Upper	C/T	1.68		
U.S.	Female	5	Middle	C/T	1.27	-.8112	NS
U.S.	Female	5	Upper	C/T	1.23		

*The Aluminum test was used because of its high inner consistency on scoring procedures as well as its significant correlation with other tests (See Table 3).

to school by children from educated parents is easier; but if this is so, one might ask why the same effect is not operative for U.S. males, who score lower than middle class males, or for U.S. females, who score lower on two scoring procedures than middle class females (W/T, and C/T). Perhaps sex role stereotyping, which seems to be present still in the English lower classes, is absent from the more educated upper class in a society that is already more egalitarian than the U.S. If this is so, why then do boys and girls of the middle class read equally well and show no sex-linked pronoun choices so apparent in U.S. children? Possibly the most credible explanation is that the impetus of socioeconomic status is never slowed down by the British school system and that the potential for both sexes is given the opportunity for reaching its optimum, with boys maturing very slightly behind girls. However, this is speculation. The question seems worthy of further research.

The lack of sex differences in the United States is also enigmatic in view of the findings from other research that so much of language is sex-linked in this country. Perhaps sex role stereotyping is lessening to the point that boys and girls can perform with more freedom from cultural inhibitions. Recent research seems to point up increasingly smaller differences between the sexes in language use.

Hypothesis 7, then, should be amended to indicate non-significance between the sexes in both countries on syntactic maturity measures for writing, with SES in Britain showing a particularly strong impetus to males in promoting syntactic growth, but unimportant to U.S. males or females.

Reading comprehension and syntactic maturity:

The British provide an interesting contrast with the United States in that reading is not ordinarily taught as a separate subject nor as skills. During a six-month stay in England, this investigator found no British junior schools using either basals or workbooks for reading among the many schools visited, although both are shown at their reading center. Teachers questioned on the subject seemed particularly interested in making readers of children by immersing them in the process of discovery through print. In addition, they felt that the skills involved in reading were highly interrelated and best acquired through reading. Their research also supports the view that reading is an integrated process rather than a hierarchy of skills.³ To an observer, British children appear to be as competent as U.S. children in reading, or more so if one were to judge by the syntactic complexity of the material they are expected to read--and do read. Much of their day is also spent in reading on the topic being researched by their classroom.

Because of the large contrast between U.S. and British instruction in reading for children in this study, it seemed particularly important to

³ A sophisticated research study with high construct validity was shared with the investigator by Colin Harrison of the Schools Council Project of the University of Nottingham while the investigator was in England on the present study. The research was completed in 1975 at that university by T. Dolan and M. Waite, using 257 pupils in nine fourth-year classes from four junior schools: Does comprehension consist of a set of skills which can be separately examined? The results of this study clearly demonstrate that reading comprehension is a single competence and not a hierarchy of skills from low to high order, and that the performance of good and poor readers on each of the tasks is generally of a piece.

determine whether the higher syntactic scores achieved by British children in their writing would be reflected in higher comprehension scores on their standardized tests in reading. It also seemed important to determine how closely the relationship between competence in reading and competence in writing would correlate. Therefore, Pearson r correlations were computed between reading comprehension percentiles from standardized tests and syntactic maturity scores on the 'Aluminum' test for fifth graders on all measures (W/T, W/C, and C/T). The same was done for British fourth level juniors from the two classrooms using standardized reading tests. Older children were used because any differences appearing between the two processes would become marked enough to be measurable by the middle grades. Significance levels were then determined.

The correlations between reading comprehension percentiles and syntactic maturity scores were highly significant for both U.S. fifth graders and for the fourth level British children. With df at 60 in both cases, significance for each group was high ($p < .001$ on each measure--W/T, W/C, and C/T--for each group tested). Because the tests were standardized in different countries, no real comparison of British and U.S. scores can be made, since the reading tests may well reflect differing standards. The fact remains that there is a high correlation for U.S. children between syntactic maturity scores on their reading comprehension based on U.S. standards for reading, as well as for British children based on their standards for reading. This result supports an earlier study (Hughes, 1975) which found an almost one-to-one relationship between reading comprehension as measured by cloze

procedure and syntactic maturity scores on the 'Aluminum' test for U.S. seventh graders, the high reading group incorporating 3 input sentences to one output, the middle, 2 to 1, and the low, approximately 1 to 1.

In order to learn whether the two tests given to U.S. fifth grade children would yield the same results when considered separately as for the combined score, the groups were subdivided so that those taking the Stanford achievement test were separated from those taking the Metropolitan achievement test.⁴ The results for those taking the Stanford test at the middle SES level with df at 60 showed the same significance as for the combined group ($p < .001$) on all measures for the 'Aluminum' test as these correlated with reading comprehension percentiles. For U.S. children in the upper SES level on the Metropolitan test with df at 40, the significance was the same for two measures and .01 for the third on the 'Aluminum' test: syntactic maturity scores for W/T correlated with a probability of $< .001$; scores for W/C, with a probability of $< .001$; and scores for C/T, with a probability of $< .01$. It is possible that the Stanford test taps the same factors for reading comprehension as are needed for syntactic maturity to a slightly greater extent than does the Metropolitan. However, the differences are minimal. It comes as no surprise that syntactic maturity

⁴ U.S. middle SES fifth-graders were given the Stanford Achievement Test, Primary Level II, Form A, by Madden *et al.*, Harcourt Brace Jovanovich, Inc., 1973. U.S. upper SES fifth-graders were given the Metropolitan Achievement Test, Intermediate Form G, Harcourt Brace Jovanovich, Inc. British upper SES children, fourth level, took the Wide-span Reading Test, Form B, standardized for children in England and Wales, by Alan Brimer, Thomas Nelson & Sons, 1972. The school at the middle SES level was omitted because tests were not standardized and only reading quotients were available.

scores and reading comprehension percentiles correlate so significantly. Kellogg Hunt (1975) has identified what makes some clauses harder to read than others as the same process that marks syntactic growth in children--the process of embedding more sentences or clauses within the clause, along with the deletion of unneeded words (p. 68). Since syntactic maturity scores and reading comprehension scores correlate highly for U.S. children, as these findings indicate, then British children, who score higher than U.S. children in syntactic maturity, should also be better readers by U.S. standards. What is particularly interesting is that the British children in this study accomplished their reading comprehension scores by reading (and writing), and not by formal work in reading as a separate subject.

CHAPTER 4. CONCLUSIONS AND IMPLICATIONS

What seems of greatest significance from this study is that schools exist where children turn to writing voluntarily as a natural mode of expression and where expertise in writing as measured by syntactic maturity, fluency, and overall quality is high. In addition, reading comprehension keeps pace in these schools with maturity of the writing without formal instruction in reading skills, work in basals, or in reading-group instruction, all time-consuming activities. Furthermore, these schools are dramatically different from the U.S. schools studied in writing emphasis, averaging from 8 - 14 hours per week in writing against 1/2 hour per month to 2 1/2 hours per week in writing for the U.S. classrooms in the study. In addition, some interesting findings emerge with implications both for U.S. education and for further research. Some of the most provocative are as follows:

The writing of British elementary children experiencing heavy writing emphasis is significantly more mature in language complexity than that of U.S. children of comparable age, averaging some two-to-three grades in advance of that of their U.S. age counterparts. Whether the heavy writing emphasis causes the increased syntactic maturity is less clear, since the children achieving the higher scores are British, so that factors other than writing emphasis might be contributing. The need for further cross-cultural research is indicated.

British children, aged eight-to-nine in this study, write far longer compositions than their third-grade counterparts in the U.S., accomplishing this feat without formal instruction in writing. In view of this finding, we can no longer say as a certainty that the average U.S. third grader is not

yet mature enough to write compositions of more than a few sentences in length, not when British children of that age are averaging 115 words per composition for middle SES children and 179 words for upper SES children, against 49 and 79, respectively, for U.S. children.

British children in schools with heavy writing emphasis are able to use the maturer syntactic forms in their free writing with surprising frequency. This is particularly true of children from schools where poetry reading and writing are stressed. Heavy writing emphasis, particularly when coupled with poetry reading and writing, evidently hastens the language maturing process, especially those forms resulting from deletion transformation. There is a need for further study of the influence of poetry, particularly the writing of poetry, on children's linguistic development. U.S. schools should find more emphasis on poetry writing particularly needed in view of the present minimal use, as shown in a recent national survey, mentioned earlier (Terry, 1974).

Sex proved non-significant as a determinant for syntactic maturity in this study, which is in line with more recent findings from other research. However, in view of British findings of no sex differences in pronoun choice by primary-age British children (Harpin, 1976, 153-154), which is in sharp contrast to U.S. findings of large sex differences (Graves, 1973; Bodkin, 1975), further cross-cultural studies are needed for learning what the factors are that inhibit or foster the sexes differently in language development within one culture but not in another. Possibly one factor that minimizes linguistic differences in growth for the sexes is the British

use of children's literature instead of basals for reading, providing boys and girls with a more realistic view of the roles of women and men in society.

Since reading comprehension percentile scores correlated significantly with syntactic maturity scores for both British and U.S. children, there are strong implications that British elementary children who write more maturely and fluently are also reading with greater comprehension. This suggests that writing may be doing for British children what skills workbooks and basals have been designed to do for U.S. children.

Socioeconomic status is a more important stimulant for language growth for British children than for U.S. children, although it was a good predictor for the younger children in both countries. Only the British children, however, maintained this early impetus into the middle years. The findings from this study appear to support those of Carol Chomsky (1972) that SES provides an initial linguistic spurt, but after that, it is what the child does, or the curriculum does to the child, that makes the difference. Possibly the difference is one of curriculum rather than one of social influence, with British schools continuing the momentum for the child already achieving high performance. One puzzling fact remains, however, which is that British boys by the middle grades are slightly more motivated by membership in the upper SES group than are girls, although both are influenced. The declining value of SES to U.S. children as a stimulant for linguistic development and its continuing impetus for British children should be investigated further. Since many researchers have noted a lag for U.S. children by middle grades in linguistic development, there seems to be implications here for further research beyond simply the factor of SES.

The clearest implication from this study is the need for more cross-cultural research. Without it, there is no way to learn what is basic to child linguistic development from what is culturally conditioned. For example, when the sexes show differing rates of linguistic growth in one culture but the same rate of growth in another, cultural rather than biological factors have to be the key. It was through cross-cultural research that Bruner found that "school promotes growth of mental operations through the training embodied in the written language. (Smith, 1977, 129)." The present study appears to add one refinement to the Bruner study, implying that for maximum linguistic development--the part of mental operations most uniquely human--both the writing and the reading of language are needed for maximum linguistic growth. Further cross-cultural research is needed, however, to be certain that the heavy writing emphasis given British children causes the differences in linguistic growth between these children and their U.S. counterparts. Writing would seem to be particularly needed for the fostering of mental operations from theoretical grounds alone, since it is multi-modal (kinetic, visual, and symbolic), involves both hemispheres of the brain (Gardner, 1975), and is an active, creative process.

One important practical aspect of a greater emphasis on writing seems to have been overlooked by U.S. curriculum planners, the importance of writing to a democracy. In the communication process, writing is roughly equivalent to sending messages, and reading, to receiving them. The large block of time allotted to reading in U.S. schools has undoubtedly been for the purpose of insuring that the coming generation of adults will be able to read and thus receive needed information. But is it not even more important that emphasis be placed on the sending of ideas, the establishment of voice, as

Donald Graves has been urging (Graves, 1978), if our democracy is to continue to exist as such? A nation of receivers has less to do with democratic processes than does a nation of senders. A recent issue of U.S. one-cent stamps bears the inscription, "The ability to write: a root of democracy," in recognition, it appears, of this crucial need.

Another reason for placing more emphasis on writing in U.S. educational curricula is its humaneness. Writing helps the child to explore his or her own beliefs and to develop self-awareness through the organization of the child's own thoughts and experiences. It is a creative process and an integrative one in which the child's emotions and thoughts are given form and existence, laid out where the child can reflect upon them. If British children can attain a linguistic development several grades in advance of U.S. children of comparable age and socioeconomic status in the normal process of exploring topics of study, organizing and writing down their own thoughts as these thoughts develop, then we need to look again at the efficiency and humaneness of our curricula. Sentence-combining has become a useful tool for linguistic gains in the U.S. and may well remain a needed part of our educational curricula, especially for catch-up purposes. However, opportunities for children to organize and write down their own thoughts, as well as the thoughts of others, are also needed.

In summary, then, this study implies that we need to reexamine the role of writing in our curricula. It strongly suggests that we need to move it closer to center stage, where British educators feel it needs to be.

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APPENDIX

THE TESTING INSTRUMENTS

For the Younger Children:

THE CHICKEN*

DIRECTIONS: Read the story all the way through. You will see that it is not very well written. Study the story, and then write it over again in a better way. You will want to change many of the sentences, but try not to leave out any important parts of the story.

A man lived in a farmhouse. He was old. He loved alone. The house was small. The house was on a mountain. The mountain was high. The house was on the top. He grew vegetables. He grew grain. He ate the vegetables. He ate the grain. One day he was pulling weeds. He saw something. A chicken was eating his grain. The grain was new. He caught the chicken. He put her in a pen. The pen was under his window. He planned something. He would eat the chicken for breakfast. The next morning came. It was early. A sound woke the man. He looked out the window. He saw the chicken. He saw an egg. The chicken cackled. The man thought something. He would eat the egg for breakfast. He fed the chicken a cup of his grain. The chicken talked to him. He talked to the chicken. Time passed. He thought something. He could feed the chicken more. He could feed her two cups of grain. He could feed her in the morning. He could feed her at night. Maybe she would lay two eggs every morning. He fed the chicken more grain. She got fat. She got lazy. She slept all the time. She laid no eggs. The man got angry. He blamed the chicken. He killed her. He ate her for breakfast. He had no chicken. He had no eggs. He talked to no one. No one talked to him.

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DIRECTIONS: Read the passage all the way through. You will notice that the sentences are short and choppy. Study the passage, and then re-write it in a better way. You may combine sentences, change the order of words, and omit words that are repeated too many times. But try not to leave out any of the information.

Milk is a food. The food is good. It builds bones. Bones are strong. Cows make milk. Cows eat grass. The grass is green. They eat hay. The hay is green. They eat grain. The grain is yellow. Cows have four stomachs. Each stomach changes the food. The food becomes milk. The milk is white. Farmers milk the cows in the morning. Farmers milk the cows in the evening. Some farmers milk with their hands. Many farmers milk with machines. They put the milk into tanks. The tanks cool the milk. Trucks haul the milk to a dairy. Germs get into milk sometimes. Germs are harmful. The dairy heats the milk. Heat kills germs. The milk is safe now. The dairy cools the milk. They put the milk into bottles. They sell the bottles to stores. They sell the bottles to homes. Children pour milk from the bottles into glasses. Children drink the milk. The milk tastes good.

For the Older Children:

STAR TREK*

DIRECTIONS: Read the passage all the way through. You will notice that the sentences are short and choppy. Study the passage, and then re-write it in a better way. You may combine sentences, change the order of words, and omit words that are repeated too many times. But try not to leave out any of the information.

'Star Trek' is a program. The program is on T.V. It is a space story. A space ship appears in all the episodes. It is called a starship. Its name is Enterprise. It travels through space. It travels through time.

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There is a captain. His name is Kirk. He comes from America. He commands a large crew. There are 400 crew members. They come from many countries. Mr. Spock is one of them. He is second-in-command of the ship. He has pointed ears. He is half human. He is half Vulcan. His mind works logically. He does not show emotions. He assists Captain Kirk. The doctor is called McCoy. He argues with Mr. Spock. He likes Mr. Spock. The ship goes on space voyages. The ship has a mission. Its mission is exploration of space. It visits galaxies. The galaxies have many planets. The ship lands on planets. Some planets are inhabited. The inhabitants are strange. The inhabitants are sometimes hostile.

ALUMINUM*

DIRECTIONS: Read the passage all the way through. You will notice that the sentences are short and choppy. Study the passage, and then re-write it in a better way. You may combine sentences, change the order of words, and omit words that are repeated too many times. But try not to leave out any of the information.

Aluminum is a metal. It is abundant. It has many uses. It comes from bauxite. Bauxite is an ore. Bauxite looks like clay. Bauxite contains aluminum. It contains several other substances. Workmen extract these other substances from the bauxite. They grind the bauxite. They put it in tanks. Pressure is in the tanks. The other substances form a mass. They remove the mass. They use filters. A liquid remains. They put it through several other processes. It finally yields a chemical. The chemical is powdery. It is white. The chemical is alumina. It is a mixture. It contains aluminum. It contains oxygen. Workmen separate the aluminum from the oxygen. They use electricity. They finally produce a metal. The metal is light. It has a luster. The luster is bright. The luster is silvery. This metal comes in many forms.

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TABLE 1

COMPARISON OF MEAN AGES FOR THE 516 BRITISH AND UNITED STATES
CHILDREN IN THIS STUDY FOR COMPARABLE GRADE LEVELS

<u>The Younger Children</u>				
Country	Grade Level	SES	Number	Mean Age
U.S.	3	Middle	21	8.69
U.S.	3	Middle	21	8.98
U.S.	3	Middle	21	9.08
British	2	Middle	31	8.49*
British	2	Middle	32	8.30*
U.S.	3	Upper	24	8.23
U.S.	3	Upper	22	8.70
U.S.	3	Upper	16	9.29
British	2	Upper	37	9.05
British	2	Upper	36	8.87
<u>The Older Children</u>				
U.S.	5	Middle	26	11.02
U.S.	5	Middle	26	11.19
U.S.	5	Middle	26	10.89
British	4	Middle	30	10.42*
British	4	Middle	24	10.16*
U.S.	5	Upper	25	11.00
U.S.	5	Upper	26	10.95
British	4	Upper	35	11.01
British	4	Upper	37	10.98
Total = 516 for both age groups				

*Note: All chronological ages were recorded approximately five months earlier for the British school at the middle socio-economic level for both second level juniors and fourth level juniors. Therefore, approximately .42 should be added to the mean chronological ages for these children to adjust for the earlier time of recording. When this is done, the actual ages of the children for each comparable grade level were very close.

TABLE 2

COMPARISON OF BRITISH AND UNITED STATES CHILDREN
ON HOURS PER WEEK OF WRITING

Country	Grade Level	SES	HRSWW* Mean	S.D.	t-value	Probability
British	2	Middle	12.50	2.121	8.709	p < .01
U.S.	3	Middle	.96	.954		
British	2	Upper	10.00	2.828	5.522	p = .01
U.S.	3	Upper	1.63	.375		
British	2	Middle & Upper	11.25	2.500	9.406	p < .001
U.S.	3	Middle & Upper	1.29	.744		
British	4	Middle	10.00	2.828	5.966	p < .01
U.S.	5	Middle	1.08	.144		
British	4	Upper	8.50	.707	3.871	p < .05
U.S.	5	Upper	1.81	.972		
British	4	Middle & Upper	9.25	1.893	8.829	p < .001
U.S.	5	Middle & Upper	1.38	.637		

TABLE 3

PEARSON CORRELATION FOR SCORES ON ALL TESTS (CH, ML, AL, ST)
WITH ALL SCORING PROCEDURE (W/T, W/C, and C/T)

N = 163				N = 173			
CH W/T	with	CH W/C	= .90122**	AL W/T	with	AL W/C	= .57128**
CH W/T	with	CH C/T	= .73656**	AL W/T	with	AL C/T	= .95707**
CH W/T	with	ML W/T	= .57190**	AL W/T	with	ST W/T	= .48901**
CH W/T	with	ML W/C	= .49386**	AL W/T	with	ST W/C	= .33563**
CH W/C	with	ML W/T	= .48616**	AL W/T	with	ST C/T	= .46250**
CH W/C	with	ML W/C	= .43771**	AL W/C	with	AL C/T	= .36221**
CH C/T	with	CH W/C	= .37926**	AL W/C	with	ST W/C	= .55435**
CH C/T	with	ML W/T	= .47968**	AL W/C	with	ST C/T	= .38606**
CH C/T	with	ML W/C	= .39555**	AL W/C	with	FW W/T	= .20025*
CH C/T	with	ML C/T	= .11081	AL C/T	with	ST W/T	= .43619**
CH W/C	with	ML C/T	= .08896	AL C/T	with	ST W/C	= .24541**
ML W/T	with	ML W/C	= .75066**	AL C/T	with	ST C/T	= .46820**
ML W/T	with	ML C/T	= .32432**	ST W/T	with	ST W/C	= .80669**
ML W/C	with	ML C/T	= .04470	ST W/T	with	ST C/T	= .79554**
FW W/T	with	FW W/C	= .78584**	ST W/C	with	ST C/T	= .30417**
FW W/C	with	FW C/T	= .63567**	FW W/C	with	FW W/T	= .59683**
				FW C/T	with	FW W/T	= .45054**

df = 150

Values of 4 at .05 (.159), at .01 (.210)

* = significance at .05

** = significance at .01

Note. The four tests are: Chicken (CH), Milk (ML), Aluminum (AL), and Star Trek (ST); the three scoring procedures are: Words per T-unit (W/T), Words per Clause (W/C), and Clauses per T-unit (C/T).

TABLE 4

A COMPARISON OF BRITISH AND UNITED STATES GROUPS ON
NUMBER OF WORDS PER COMPOSITION FOR FREE WRITING

COUNTRY	GRADE LEVEL	SES	NUMBER OF WORDS MEAN
British	2	Middle	115
United States	3	Middle	49
British	2	Upper	179
United States	3	Upper	79
British	4	Middle	152
United States	5	Middle	153
British	4	Upper	236
United States	5	Upper	116

TABLE 5

COMPARISON OF BRITISH AND UNITED STATES CHILDREN
ON FOUR TESTS WITH THE THREE SCORING PROCEDURES

COUNTRY	NUMBER	GRADE LEVEL	VARIABLE	MEAN	t	p
British	118	2	CH W/T	6.84		
U.S.	107	3	CH W/T	6.46	-2.094	p < .05
British	118	2	CH W/C	6.04		
U.S.	107	3	CH W/C	6.02	- .1805	NS
British	118	2	CH C/T	1.13		
U.S.	107	3	CH C/T	1.07	-4.339	p < .001
British	115	2	ML W/T	6.25		
U.S.	108	3	ML W/T	5.51	-4.278	p < .001
British	115	2	ML W/C	5.47		
U.S.	108	3	ML W/C	5.19	-2.400	p < .05
British	115	2	ML C/T	1.14		
U.S.	108	3	ML C/T	1.06	-3.904	p < .001
British	109	4	AL W/T	9.27		
U.S.	116	5	AL W/T	6.77	-5.120	p < .001
British	109	4	AL W/C	6.13		
U.S.	116	5	AL W/C	5.52	-5.119	p < .001
British	109	4	AL C/T	1.47		
U.S.	116	5	AL C/T	1.22	-4.223	p < .001
British	116	4	ST W/T	6.97		
U.S.	115	5	ST W/T	6.44	-2.833	p < .01
British	116	4	ST W/C	6.07		
U.S.	115	5	ST W/C	5.86	-1.968	p = .05
British	116	4	ST C/T	1.14		
U.S.	115	5	ST C/T	1.09	-2.456	p < .05

TABLE 6

COMPARISON OF BRITISH AND UNITED STATES GROUPS OF SIMILAR SES AND SEX
ON EACH SCORING PROCEDURE FOR THE ALUMINUM TEST*

Country	Sex	Grade Level	SES	Scoring Procedure	Mean	t	p
British	Male	4	Middle	W/T	6.40	3.015	p <.01
British	Male	4	Upper	W/T	9.85		
U.S.	Male	5	Middle	W/T	6.72	-.3968	NS
U.S.	Male	5	Upper	W/T	6.52		
British	Female	4	Middle	W/T	8.24	1.873	NS
British	Female	4	Upper	W/T	10.95		
U.S.	Female	5	Middle	W/T	6.98	-.4160	NS
U.S.	Female	5	Upper	W/T	6.80		
British	Male	4	Middle	W/C	5.49	3.295	p <.01
British	Male	4	Upper	W/C	6.28		
U.S.	Male	5	Middle	W/C	5.64	-.8664	NS
U.S.	Male	5	Upper	W/C	5.44		
British	Female	4	Middle	W/C	6.15	.7329	NS
British	Female	4	Upper	W/C	6.37		
U.S.	Female	5	Middle	W/C	5.47	.2723	NS
U.S.	Female	5	Upper	W/C	5.52		
British	Male	4	Middle	C/T	1.16	2.957	p <.01
British	Male	4	Upper	C/T	1.54		
U.S.	Male	5	Middle	C/T	1.19	-.3101	NS
U.S.	Male	5	Upper	C/T	1.18		
British	Female	4	Middle	C/T	1.31	2.012	p <.05
British	Female	4	Upper	C/T	1.68		
U.S.	Female	5	Middle	C/T	1.27	-.8112	NS
U.S.	Female	5	Upper	C/T	1.23		

*The Aluminum test was used because of its high inner consistency on scoring procedures as well as its significant correlation with other tests (See Table 3).

FIGURE 1

COMPARISON OF MEANS ON CHICKEN TEST FOR BRITISH AND UNITED STATES CHILDREN (AGES 8-9)
BY SOCIOECONOMIC STATUS, USING THE THREE SCORING PROCEDURES

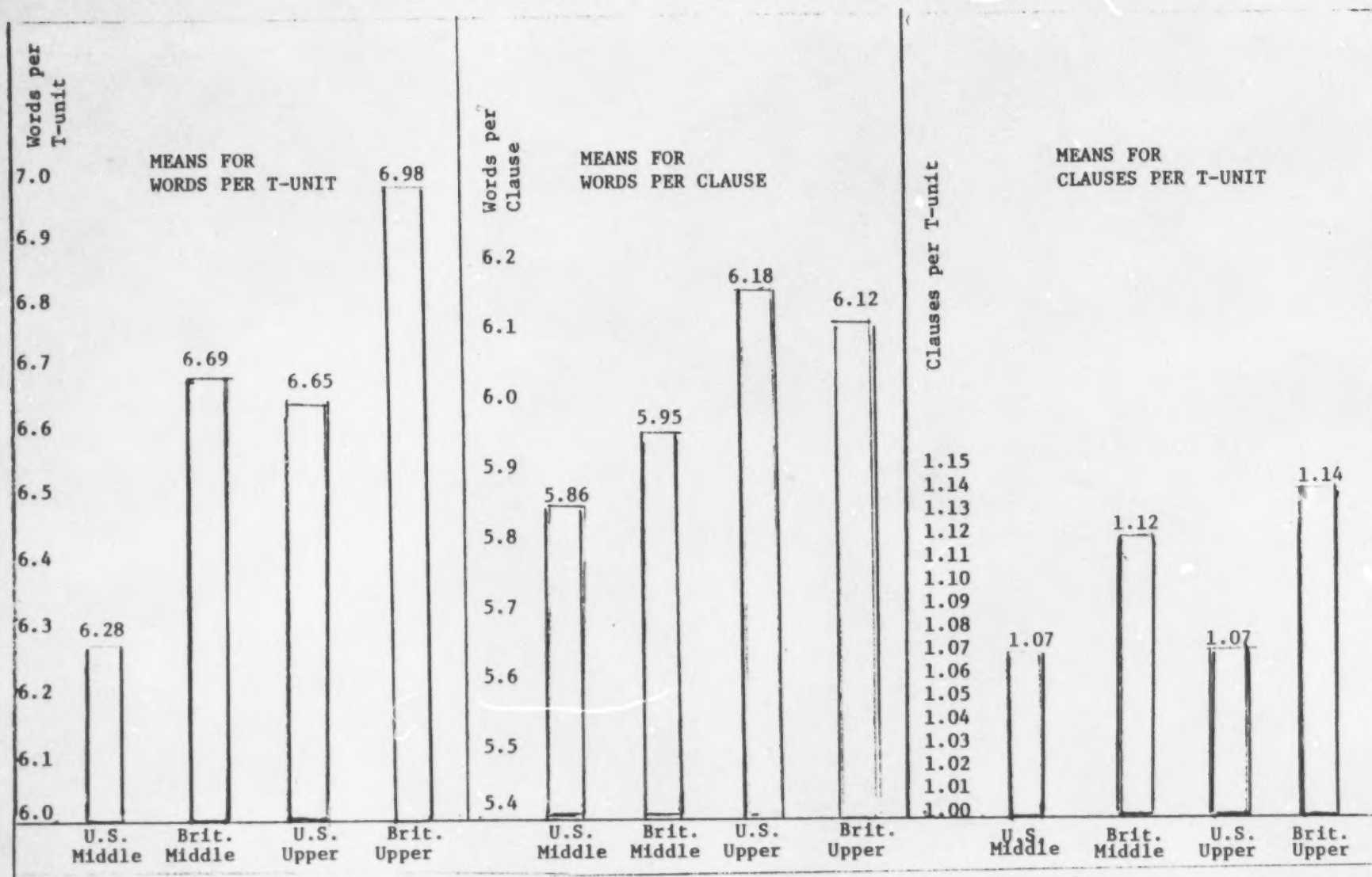
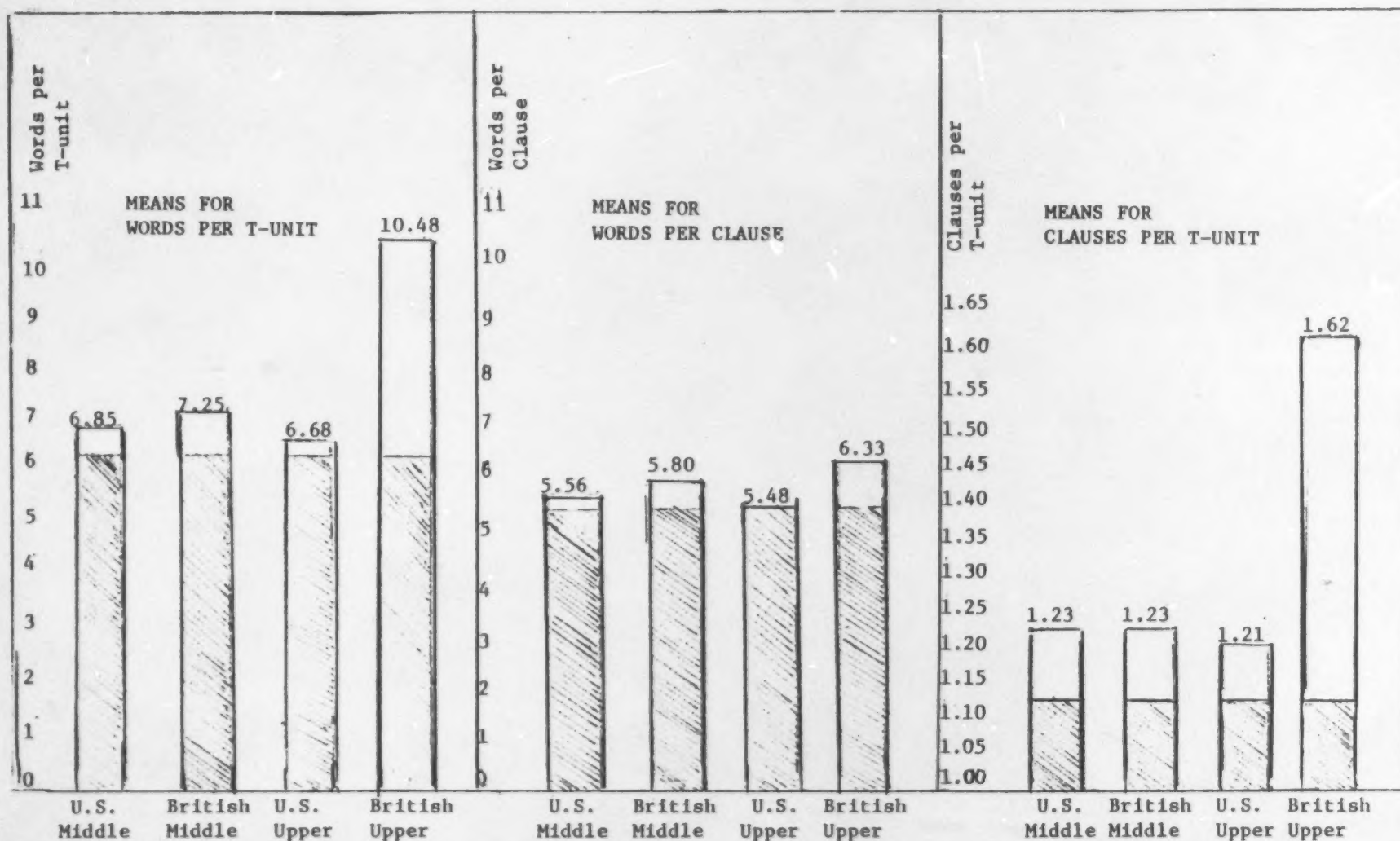


FIGURE 2

COMPARISON OF MEANS ON ALUMINUM TEST FOR BRITISH AND UNITED STATES CHILDREN (AGES 10-11)
BY SOCIOECONOMIC STATUS, USING THE THREE SCORING PROCEDURES, WITH HUNT'S NORMS
BEING SHOWN BY THE SHADED PORTION OF EACH BAR*



*Hunt's norms for fifth grade are averaged from the means for grades four and six (all groups for these grades); these are 6.13 W/T, 5.48 W/C, and 1.11 C/T, as indicated by the shading.

Note: Scales for W/T, W/C, and C/T on the children taking the Aluminum test (ages 10-11) are at wider intervals than on Table 1 for the younger children, to accommodate for the higher scores made by this age group.